

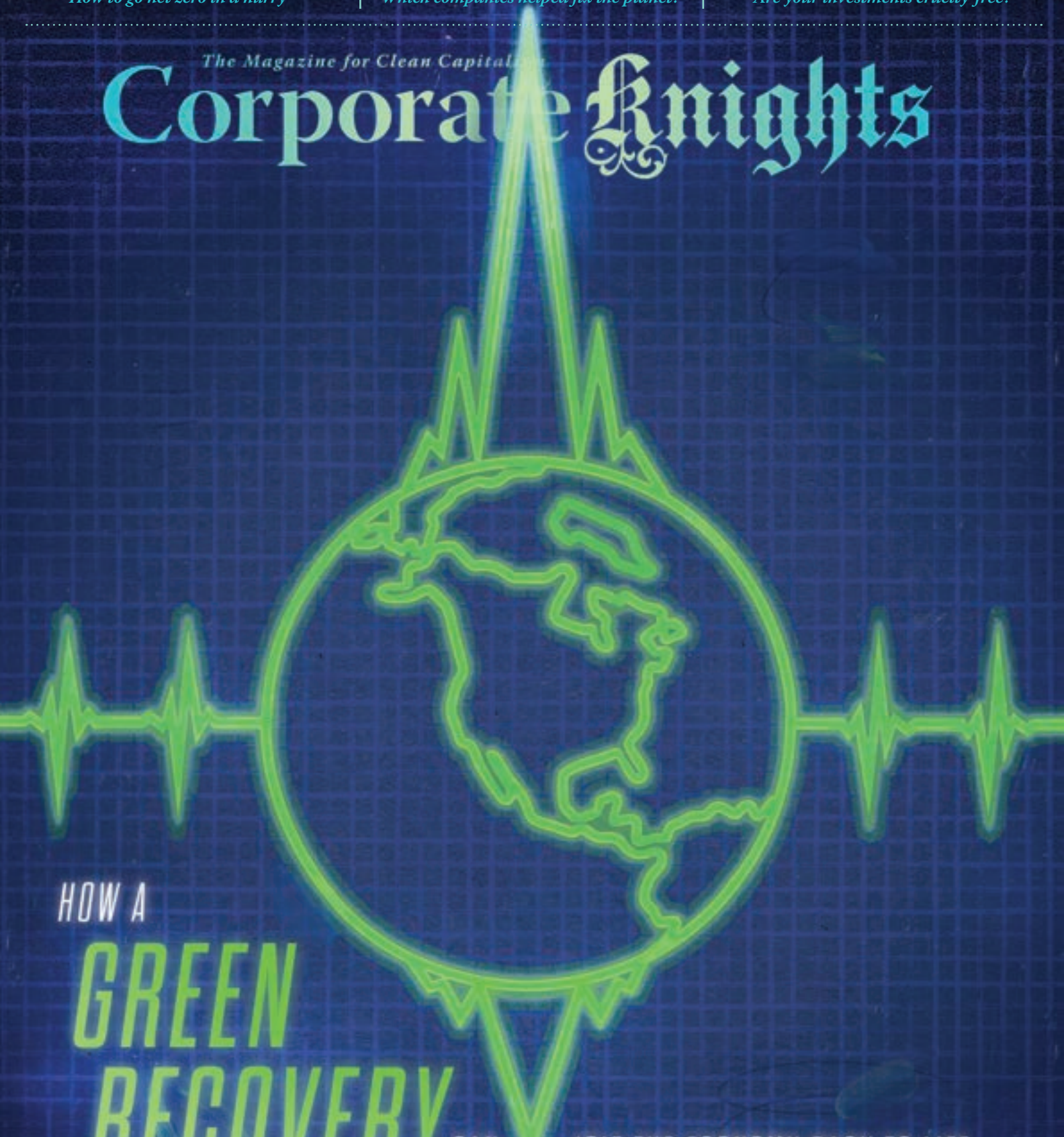
**8 LESSONS FROM THE EU p.18**  
*How to go net zero in a hurry*

**TOP 50 GREEN BIZ MOVES p.26**  
*Which companies helped fix the planet?*

**CRUELTY IN YOUR PENSION p.60**  
*Are your investments cruelty-free?*

*The Magazine for Clean Capitalism*

# Corporate Knights



HOW A

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RECOVERY**

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JOLT THE ECONOMY BACK TO LIFE

+

**HEAL OUR PLANET...**

SPRING 2020  
VOL. 19 ISSUE 2 • \$6.95

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## TICKED OFF BY TECK

I do not understand why a company (Teck Resources) that is a prime promoter of oil sands development can get into your top 100 global ranking. Their main source of revenue is coal, admittedly steel-making coal not thermal, but that and developing the oil sands?

—Michael Carter, Toronto

CK: Teck is a mining company that is straddling the energy transition. It recently shelved its mammoth Frontier oil sands project, which had become environmental and economic kryptonite. Had the project gone forward, it would have sapped resources from Teck's clean-economy mineral growth business, which is a prime reason for its Global 100 inclusion. We take it as a positive sign that Teck has been plowing profits from its steel-making coal to become one of the world's leading developers of clean economy minerals (like copper), which are required to decarbonize the economy.

## INCREDIBLY SHRINKING PACKAGING

I have used Dove underarm deodorant for a long time, and over the past couple of years I have watched the actual content shrink from the original 100 grams to 76 grams – and the package size has stayed the same: a shocking waste of resources serving only to squeeze more profit. So it was quite a shock to see Unilever move up the list to 46th place. To my unsophisticated mind, they should not even be on the list.

—Dave Ferguson

CK: Unilever (owner of Seventh Generation and Ben & Jerry's) is considered among the best-in-sector in the personal-care and cleaning-product

industry because of its commitment to increasing its use of sustainable ingredients, as well as being top quintile in gender leadership diversity. The packaged-goods maker could certainly do better, but it's committed to halving the waste associated with the disposal of products by 2020. Let's hope it delivers.

## EV ARTICLE OFF THE DEEP END

I started reading your article on EV battery "cleanliness." I got to the discussion on "destructive" deep-sea mining, which you tossed out in a single sentence, which is when I tossed the magazine. Questions: Is non-nascent shallow-sea mining (e.g. diamonds) okay in your opinion? What is the comparison of the cleanliness of shallow-sea mining to deep-sea mining? Are Fiji and Greenpeace the world experts on the cleanliness of all types of "nascent" deep-sea mining? How do the various proposed types of deep-sea mining compare ecologically with existing terrestrial mining? How does the construction of offshore wind farms (e.g. subsea cable burial) compare with deep-sea mining? How does port construction and harbour dredging compare?

—Eric Jackson, Vancouver

CK: The topic certainly deserves greater in-depth exploration.

## SUBSIDIZE THIS

Can you publish a list of the government grants and incentives provided to the coal, oil and gas industries and propose clean-energy developments where these grants could be redirected?

—Doug Chivers, Vancouver

CK: Great idea. According to the International Institute for Sustainable Development, federal fossil-fuel subsidies in Canada reached at least \$600 million in 2019, but this figure does not include subsidies for which publicly available data was lacking, such as tax-related subsidies or potential subsidies related to the Trans Mountain Pipeline and expansion. The real number is likely in the billions, money that would go a long way to building out electric charging infrastructure or enabling ride-share services to electrify.

We welcome readers to submit letters to [submissions@corporateknights.com](mailto:submissions@corporateknights.com) or by mail to our office at:

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147 Spadina Ave., Suite 207  
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M5V 2L7, Canada



Applying a climate lens to our economic recovery package could get people back to work while building a more resilient Canada for the long term.

**p42**

## FEATURES



### How to afford affordable green housing **p14**

*Sustainably designed affordable housing projects have become increasingly critical in meeting cities' climate and social inclusion goals.*

### Global game-changer: Europe's Green Deal has lessons for Canada **p18**

*If Canada is serious about reaching net zero by 2050, it needs to learn everything it can from the EU's incoming Green Deal.*

### Does your bank offer ethical investments? **p22**

*Corporate Knights anonymously visited branches of the Big Five banks and asked about responsible investing. Which delivered?*

### 50 years and 50 green company actions that helped heal Earth **p26**

*On the 50th anniversary of Earth Day, we look at which corporate actions have had the biggest impact on improving the state of affairs on our planet.*

### How a green jolt could spur our economy and save the planet **p42**

*As we start to move from crisis to recovery post-pandemic, Canada's thought leaders weigh in on opportunities to build back stronger and greener.*

### Mintzberg Declaration of Our Interdependence **p58**

*A bottom-up "call to action, not to arms" promotes collaboration for the greater good of society.*

### Editor's Note **p5**

Coronavirus connects us all and makes us all vulnerable. Now if governments could just respond to the urgency of climate science as swiftly as they have to COVID-19.

### News Briefs **p7**

Oil companies pull the plug on mega-projects, pesticide propaganda exposed, and mandating corporate morality.

### Is your pension banking on animal cruelty? **p60**

Most pension funds are clued out on whether the companies they're invested in account for animal welfare.

### 5 green building trends for 2020 **p62**

From heating offices with sewage energy to fast-tracking timber buildings.



### Heroes & Zeros **p64**

Marlboro maker says it's cleaning the air, while Siemens controversy kicks up firestorm.

### Knight Bites **p66**

Cashing in on Canada's clean economy.

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## Our best shot at building back better after the COVID crisis

BY TOBY A.A. HEAPS

The COVID crisis and the climate crisis have a lot in common.

Both are mortal threats to humanity, but the coronavirus has the urgency of a bullet coming at our heads, whereas the climate crisis is a slower burn (albeit increasingly prone to blazing flare-ups).

With the coronavirus, time is compressed into minutes, hours, days and months. What we do today can determine if our families, neighbours and communities get deadly ill in the next 14 days. That temporally compressed line that connects our actions to their life-saving impacts has spurred governments around the globe to make the tough decision to lock down their economies and bring the engine of capitalism to a shuddering halt.

With the climate burn, the time scales are longer. If we throw water on the fire today, it could take decades or centuries before the flames are doused.

How to solve this riddle of time? For wisdom, I turned to my friend Nick Parker.

Nick is the prophet of “cleantech.” He coined the term in 2002 and helped catalyze an ecosystem that has since moved mountains of money (\$150 billion of venture capital and private equity at last count) to develop cheap and sustainable solutions the world now appears ready to adopt.

Again today, Nick had an answer to the climate riddle. He said we can think about this in three phases.

The first 30 days was about saving our lives. The next 90 days is about keeping the economy on life support. The 900 days after that will be about building the society we want.

As we plan for the next 900 days, there will be no shortage of suggestions for how we can build back better, but it would be a disservice to the moment if we are not clear-eyed about what will drive the recovery. It will be people.

This virus has exposed the brittleness of our economic system, a system that has been downloading costs to the most vulnerable for too long. As we hunker down in our homes, we are sustained by essential workers, so many of whom are not even earning a living wage. In the starkness of our self-isolation we can now see that the people we need the most are often the ones we value the least.

As Mark Carney wrote recently in *The Economist*, “After decades of risk being downloaded onto individuals, the bill has arrived, and people do not know how to pay it.”

The social contract just came up for renewal, and those who have been getting short-changed are demanding a raise.

The people who have been rigging the game now recognize that the jig is up and are

falling into line.

The *Financial Times*, flagship paper of the Davos class, signed off on the deal with an unsigned editorial this April: “Radical reforms – reversing the prevailing policy direction of the last four decades – will need to be put on the table. Governments will have to accept a more active role in the economy. They must see public services as investments rather than liabilities and look for ways to make labour markets less insecure. Redistribution will again be on the agenda, the privileges of the elderly and wealthy in question. Policies until recently considered eccentric, such as basic income and wealth taxes, will have to be in the mix.”

People must be at the front of the line come stimulus time.

Fortunately, thanks in part to the clean innovation wave that Sir Parker’s ripples helped to generate, this could work out just fine for our climate.

If the objective of the economic recovery is to get as many people back to work as fast as possible and lay the foundations for a strong economy capable of digging us out of a debt hole, there may be no more effective strategy than applying a climate lens.

Putting a climate lens on economic stimulus sounds like a constraint or dilution of the primary mission. But rather than a constraint or diluent, it’s more akin to X-ray vision that will help us cut through the fog of old ways to hone in on the most effective investments that will get more people back to work faster while bolstering our long-term economic potential.

That’s because the clean economy is generally more labour-intensive (think retrofits) and has higher – more than double in most cases – compound annual growth rates as compared to the general economy.

This flies in the face of a still popular perception that carbon reduction policies are simply expensive. That might have been true 10 years ago when the cost of clean technologies was high. But since then the relentless march of technological progress has slashed clean technology costs, and they continue to fall.

As it becomes ever-cheaper to make and store clean energy; build smarter, more efficient buildings and industry; and electrify transport (even with oil at negative prices, electricity is still by far the cheaper way to move a car), demand for these products goes up, and those economies that invest accordingly rise to the top.

For these next 900 days, let’s take off the blinders of the past and put on a pair of climate X-ray goggles. They can help guide us through the pandemic portal to another world, one we can be proud to bequeath to our grandchildren. 🦋

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 EATING VEGETARIAN,  
 BATTERY RECYCLING,  
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# Corporate *Knights*

SPRING 2020

— NEWS BRIEFS —

VOL 19 ISSUE 2



An ambulance crosses through an empty Manhattan as COVID-19 brings the usually vibrant metropolis to a standstill.

**COMPANIES STEPPING UP FOR COVID-19** Will the coronavirus pulverize the global economy and turn us all into grieving paranooids? Or will it usher in a new culture of community and conscience?

It's too early to predict how COVID-19 will reshape the future. The travel, entertainment, hospitality and personal-services sectors have already been devastated. A Canadian Federation of Independent Business survey found that 32% of owners who had shut down their

businesses in March were unsure if they would ever reopen.

The media has also identified the first winners of this global reckoning. Setting aside for a moment the immeasurable personal tragedies caused by the virus, here are some preliminary results:

- Greater concern for the environment could be COVID's legacy, wrote columnist Gwynne Dyer. "The clean air over China's cities in the past month, thanks to an almost total shutdown of the big




sources of pollution, has saved 20 times as many Chinese lives as COVID-19 has taken . . . People will remember this when the filthy air comes back and want something done about it.”

- Movements for social change may be empowered by governments’ rapid moves to restrict behaviour and unleash financial support. At *TheConversation.com*, U.K. economist Simon Mair said the virus “is expanding the economic imagination. As governments and citizens take steps that three months ago seemed impossible, our ideas about how the world works could change rapidly.”

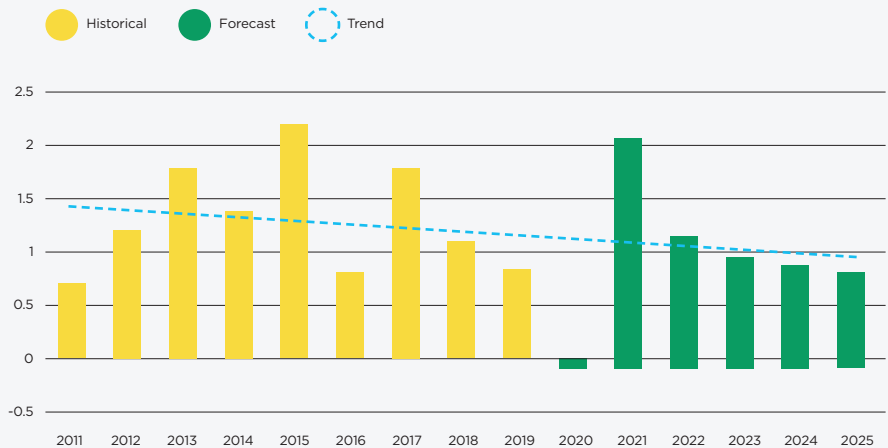
- Retail and food workers are finally getting some respect, with companies such as Maple Leaf Foods, Loblaw, Sobeys, Metro and Walmart granting raises to frontline staff, introducing the concept of “hero pay.” Though *Corporate Knights* asks whether \$2 extra an hour is enough for the grocery employees putting their lives on the line. Canadian banks are giving frontline employees an extra \$50 a day and additional paid time off; TD Bank Group is giving bonuses of up to \$1,000.

- Tycoons such as Bill Gates, Mark Zuckerberg, Jack Ma and Elon Musk polished their reputations by funding hospitals, medical supplies and research. But the Canadian billionaire community, wrote the *Toronto Star’s* David Olive, “has hardly been heard from on arguably the greatest crisis Canada has ever faced.”

- Manufacturers of everything from hockey skates to gin began retooling to deliver personal protective equipment to those who need it most. Heavyweights that have stepped up include H&M, Ford, GM, Dyson and Gucci’s parent company, Kering. Several companies have been saluted for establishing COVID relief funds, including Facebook, which set up a US\$100 million relief fund for businesses in 30 countries, and meal-delivery companies, whose services helped thousands of restaurants stay open. Facebook also set up an additional US\$100 million fund to support news media. Sony, Netflix and Amazon created their own US\$100 million global relief funds — though striking Amazon employees say not enough is being done to keep them safe.

And then there are the hidden heroes: the workers delivering essential services across dozens of sectors, as well as anyone who is stepping up to support aging relatives during the crisis, check up on their neighbours, shop for the quarantined, donate money or haul canned goods to food banks. We’re banging on our pots and pans in thanks for you, too. 

## Global oil demand growth 2011-2025



Following a steep pandemic-related drop-off in oil demand in 2020, the IEA forecasts that demand will rebound in 2021 before decelerating again as global transportation is electrified.



## Big Oil is losing: Why climate change isn’t just our kids’ problem anymore

While energy-industry associations and conservative politicians fight a desperate rearguard battle against climate economics, the global oil patch is slowly starting to accept the low-carbon economy.

It’s a fitful revolution. There will be backsliding and green-washing. But we can all breathe easier as more companies, institutions and associations face up to their climate responsibilities. This in turn will put increasing pressure on the resource-guzzling laggards as they see investors, customers and far-sighted energy producers all betting on systemic change.

In December, Spanish oil giant Repsol became the first oil major to adopt the UN

climate goal of achieving net-zero carbon emissions by 2050. That’s the deadline to mitigate climate emergency by holding global warming to the Paris Agreement target of less than 2 degrees Celsius (compared to pre-industrial levels). To start, Repsol said it would take a post-tax “impairment charge” this year of €4.8 billion (about \$7 billion Canadian).

With that, the future came into focus. Shell, BP, Eni, Equinor and Total all fell into line, pledging to work toward the 2050 target — a complete set of Europe’s six largest oil and gas firms. BP promised a transformative strategy that will emphasize innovation and boosting investment outside of oil and gas, as well as advocating for policies that support net-zero emissions, “including carbon pricing,” and strong-arming the industry’s trade associations to stop dragging their feet on climate issues.

These noble goals failed to move BP’s critics. “When will they stop wasting billions on drilling for new oil and gas we can’t burn?” noted Greenpeace. “And what are they going to do this decade, when the battle to protect our climate will be won or lost?”

Still, the tide is turning. Other resource giants making carbon pledges include Vancouver-based mining giant Teck Resources (which cancelled its plans for Canada’s largest oil-sands processing plant due to uncertainty over the future of hydrocarbons), Calgary oil giant Cenovus and UK-based mining giant Rio Tinto — which



said it will invest US\$1 billion over the next five years to reduce its carbon footprint.

U.S. energy firms such as ExxonMobil and Chevron have specifically declined to join Team 2050. At ExxonMobil's annual investor summit in early March, CEO Darren Woods dismissed the zero-carbon pledge as a "beauty contest" and predicted significant demand growth.

The International Energy Agency is challenging oil companies to dig into their "deep pockets" to accelerate the carbon transition. It says oil producers have the knowledge and skills to develop new emissions-reduction technologies, innovate in carbon capture and storage, and exploit alternative energy sources such as hydrogen, biofuels and offshore wind.


The alternative certainly looks bleak. Certainly, business as usual ain't working. Recently, Norwegian oil company Equinor (formerly Statoil) dropped a plan to drill for oil in the Australian Bight Marine Park, 400 kilometres off the coast of South Australia. Oklahoma-based Williams Co. cancelled a US\$1 billion gas pipeline to carry natural gas from Pennsylvania to New York City. And Chevron Corp.

took a US\$1.6 billion writedown on its 50% interest in a project to carry British Columbia gas to a new gas-liquefaction plant at the port of Kitimat.

And that was before COVID-19 quarantined the global economy. The pandemic has seen financial analysts working overtime to lower their predictions for world oil demand. On April 1, Norway-based Rystad Energy estimated oil consumption would fall this year by 2.5 billion barrels – a 6.4% drop from 2019 levels. And that's despite the Saudi-Russia oil-price war that's depressed prices to as low as US\$26 a barrel – down from US\$84 at the end of 2018.

In the four weeks following Exxon's Investor Day, as the full impact of COVID-19 hit home, Chevron and ExxonMobil stock dropped 28% and 30%, respectively. BP's and Shell's shares both fell by just 19%.

A small sample but perhaps a telling one. A recent Bank of America report chronicled the energy industry's decline. In 2008, energy stocks constituted 16% of the value of the S&P 500; today they account for just 5%. The study cited concerns around oil demand and increasing

investor focus on the need to address the climate emergency. The report's top line: "Climate change: It's not just our kids' problem anymore." 



## BlackRock still all in on climate investing

The ambitious son of a California shoe-store owner, Larry Fink got an MBA in real estate management in 1976 and soon disrupted Wall Street with a new type of investment: the mortgage-backed security. But after one wrong prediction about

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interest rates caused his employer, First Boston, to lose US\$100 million, Fink decided to start his own company, to invest clients' money with greater emphasis on risk management.

Fast-forward 30 years and BlackRock Inc. is now the world's largest asset manager, with US\$7.4 trillion in assets under management. But Fink remains obsessed with reducing risk. Every year he writes a letter to the CEOs of the companies in BlackRock's portfolio, explaining how they can become closer partners. These letters are now widely read manifestos on how businesses must become more purposeful and socially responsible in an era of change.

BlackRock's recent letters have focused on long-term thinking (2015), prioritizing value creation (2016), resilience (2017) and social purpose (2018/19). For his 2020 letter, released in January, Fink shifted tone from prescriptive to punitive. "The evidence on climate risk is compelling investors to reassess core assumptions about modern finance," he wrote.

Fink urged every company to rethink its carbon footprint and warned that BlackRock would begin to exit investments, such as coal producers, that "present a high sustainability-related risk."

Declaring that "climate risk is investment risk," Fink predicted there will soon be "a significant reallocation of capital" based on social and environmental concerns. Accordingly, he said BlackRock would introduce new funds that shun fossil-fuel-related stocks and would press companies to disclose plans "for operating under a scenario where the Paris Agreement's goal of limiting global warming to less than two degrees is fully realized."

Given the risks surrounding sustainability, he said, "we will be increasingly disposed to vote against management when companies have not made sufficient progress."

Critics say that BlackRock came late to the party and waited too long to demand that companies disclose their sustainability efforts. Arriving late definitely cost them: in 2018 the Institute for Energy Economics and Financial Analysis found that BlackRock had lost more than US\$90 billion on big-oil investments over the past decade.

But the firm is starting to make up for it now. Which is a good thing, since BlackRock still has egg on its face from the 2019 annual meeting season, where it opposed 95% of the 81 climate solutions it had a chance to vote on, according to Proxy Insight.

In March, BlackRock reiterated its pledge to hold corporate boards accountable for acting on climate risks, even as companies deal with the impacts of the coronavirus. At a natural gas distributor, for instance, BlackRock opposed the re-election of one director, the audit-committee chair, because he'd paid insufficient attention to reporting climate issues.

BlackRock also voted against a shipping company's executive-pay packages "for not setting sufficiently challenging performance conditions" and helped convince a national poultry producer to adopt more stringent sustainability reporting.

"This year," said BlackRock's global head of investment stewardship, "we're being much more direct." 🦋



## McKinsey climate report: "The good news is that we know the bad news"

You've heard the predictions a thousand times. The climate crisis will change all aspects of life. Seas will rise, more forests will burn, crops will fail, and polar bears will disappear.

Specifically, though, what will happen over the next 10 years? Or the next 30? Consulting giant McKinsey just released a major report examining the increasing impact of climate change. Drawing on the firm's global consulting teams, and supplemented by scientists, engineers and risk experts around the world, the study paints a frightening picture of the future.

But unless you can see the future clearly, how can you prepare for it?

The report, *Climate Risk and Response: Physical Hazards and Socioeconomic Impacts*, explores how physical climate change creates increased socioeconomic risk. From lethal heat waves to riverine

floods and glacier melts, the study estimates the probabilities of diverse potential impacts, to help decision-makers better understand and mitigate these risks.

McKinsey's experts see five major types of potential disruption creating billions of dollars' worth of risks by 2050:

- livability (for example, a billion people will live in areas with a 14% average annual likelihood of experiencing lethal heat waves);
- food systems (increased drought conditions are expected to reduce the global annual harvest by at least 15%, at least once a decade);
- physical assets (for instance, a 38-centimetre rise in sea levels in Florida could lead to massive property destruction from a 100-year storm, totalling US\$50 to \$75 billion);
- infrastructure services (flood damage to municipal infrastructure in Ho Chi Minh City, Vietnam, could hit US\$8 billion); and
- natural capital (45% of land areas are projected to experience biome shifts, eroding local livelihoods, ecosystem services and species habitat).

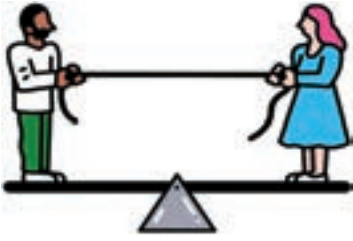
Starkly, the report says our institutions are "unprepared" for the real impacts of climate change. That's partly because even the nature of risk will change over the next 30 years. It reviews nine case studies, the socioeconomic impact of which by 2050 varies between two and 20 times versus today's levels. The earth is warming now and will continue to warm even if we reach zero emissions. "Managing that risk will require not moving to a 'new normal,' but preparing for a world of constant change."

In each case the report studied, the poorest communities were typically the most vulnerable. "Emerging economies face the biggest increase in potential impact on workability and livability."

Introducing the report on a panel at the World Economic Forum in Davos, Switzerland, in January, McKinsey senior partner Dickon Pinner positioned it as a tool for creating hope. The study proves, he said, that "we need to put physical climate risk at the heart of all decision-making and risk management." While the report paints a bleak picture, he said he hoped it will motivate more people to action.

Responding to Pinner's comments, a colleague quipped, "So, the good news is that we know the bad news." 🦋





## COVID-19 is exacerbating gender inequity

In a special report on the gender pay gap, compensation data firm PayScale noted that COVID-19 is exacerbating gender imbalances in the workplace.

Women occupy a high percentage of positions in education, office support, social services and personal care, which are more likely to be suspended, laid off or forced to work reduced hours during the pandemic. PayScale noted that women “are also more likely to have to take time off work, or even resign their positions, in order to care for children who are no longer in school, as well as other family members.”

The report was released in advance of Equal Pay Day on March 31. With the stats saying that women earn on average only 75 to 80% as much as men, Equal Pay Day was founded to recognize the day of the year when women have finally made as much money over the past 15 months as their male colleagues earned in 12.

While that pay gap has been shrinking, it's not happening fast enough to meet the goal of the Ontario-based Equal Pay Coalition: to achieve wage parity by 2025. Still, market forces are kicking in. As big companies struggle to find talent, they've been adopting more formal structures, such as pay parity, special leadership programs and rules regarding sexual harassment, to promote equity for women and other disadvantaged groups.

Longer-term, the signs are more encouraging. Bloomberg publishes an annual Gender-Equality Index, which tracks the progress of public companies committed to supporting gender equality. This year's list includes 16 Canadian companies, up from just 12 in 2019.

Canuck companies on the list include all six major banks, plus insurance giant Manulife, as well as such outliers as Enbridge, Teck Resources and retailer


Lululemon. Newcomers this year include Algonquin Power, Aurora Cannabis, toy-maker Spin Master, engineering giant Stantec and electrical producer TransAlta.

*Corporate Knights* checked on a few of these firms to find out how they're managing equality at the top. Our conclusion: awkwardly.

- Only one of the 16 companies is headed by a woman: Dawn Farrell, CEO of TransAlta. The firm's 12-person board includes only four women.

- Kathleen Taylor chairs the board of RBC, and six women sit on the 14-seat board. But just one woman ranks among the bank's 10 “executive officers.”

- Manulife lists 12 men on its senior leadership team and just three women. Marianne Harrison runs Manulife's sprawling U.S. division, with assets nearing US\$500 billion.

- Lululemon is the only Canadian company with gender parity on its board: five men and five women. Its website lists a management team of six women and four men. 

## Pesticide propaganda playbook

In 2006, American beekeepers in Pennsylvania reported they'd lost 30% of their honeybee populations over the previous winter. Beekeepers from Florida to California soon raised similar alarms. Bees are nature's prime pollinators; their tireless buzzing fertilizes two-thirds of the world's agricultural crops, from apples to blueberries to coffee.

Fifteen years later, we're no closer to solving the problem. And according to an investigative article by U.S. journalist Lee Fang of *The Intercept*, the cause of the bee decline is simple: the increasing use of commercial pesticides. That and the chemical producers' determination to conceal the truth by manipulating academia, media and government.

Fang's story, “The Playbook for Poisoning the Earth,” shows how agrochemical companies such as Bayer, Syngenta and Monsanto (itself acquired by Bayer in 2018) deflected attention from their pesticide products through misleading propaganda bolstered by relationships with prominent academics and scientists.

Fang, like many, believes the heart of the problem lies with neonics (or

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Pesticide makers went to great lengths to influence public opinion, beekeepers and regulators, funding coalitions that promoted non-pesticide reasons for pollinator decline.

neonicotinoids), the world's most common class of insecticides (and a \$6 billion global industry). Formulated to kill specific pests, neonics are marketed as being safe for other insects. But studies have found that even trace amounts of neonics make honeybees much more vulnerable to fungal infections that impair their ability to forage or resist parasites.

To save the bees, the European Union has banned the use of many neonicotinoid-based pesticides on flowering plants. But in North America, Fang writes, the industry defied regulators by digging in, "seeking not only to discredit the research but to cast pesticide companies as a solution to the problem."

CropLife America, a trade association that represents the pesticide industry, led a public-relations effort to reframe the issues around bee decline by focusing on the threat of the Varroa mite, a disease-carrying parasite that infests beehives. Shifting the blame had the happy side effect of also boosting demand for new pesticides to control Varroa mites.

"The companies also sought influence with beekeepers and regulators, and went to great lengths to shape public opinion," Fang writes. "Pesticide firms launched new coalitions and seeded foundations with cash to focus on non-pesticide factors in pollinator decline."

To counter government attempts to regulate neonics use, pesticide producers

cited numerous research papers – many of which were funded by the industry or debunked by objective researchers.

Whatever happens to the honeybee, this controversy illustrates an increasing social problem: how can we make the right policy decisions when powerful interests are spending invisible millions to promote their own agendas? If you truly wish to understand the world, be vigilant about analyzing where your information comes from, and who might be influencing it.



## Operation Upgrade: Mandating corporate morality

Capitalism needs an upgrade. Its operating system has been corrupted, the inputs and outputs are out of alignment, and the central processing unit needs more air and light.

But there's hope for the old clunker yet – if we can adopt a hybrid system that runs on not just profit but purpose.

That's the diagnosis of London law firm Bates Wells, which has written a bill for the U.K. Parliament to reform the operating system of capitalism so that it "is responsive to a world of increasingly limited resources and in turn supports the development of a future-fit economy."


According to the Bates Wells coalition, capitalism contains a design flaw: businesses are managed for their own self-interest. In the U.K., the faulty driver is Section 172 of the Companies Act 2006. While it encourages boards to consider the interests of employees, communities and the environment in their decision-making, it permits them to prioritize shareholders' interests over all others.

Bates Wells's "Operation Upgrade" proposes tweaking Section 172 to require companies to ensure that their business activities have a positive impact on society and the environment, alongside the benefits they offer to shareholders.

Beyond mandating morality, the proposal would require U.K. companies to produce annual impact reports disclosing their positive and negative impacts on society and the environment. For publicly traded firms, the reports would be subject to annual audits.

The proposal goes against decades of "Chicago school" rules, promoted by the late economist Milton Friedman, who famously said that businesses should be beholden only to shareholders. But the pressure is growing for a social-purpose reboot.

Leading the charge for Operation Upgrade is Dutch executive Paul Polman, the former Unilever CEO who proved that sustainability and ethics can go hand-in-hand with profit. Now, he says, "if we want business and society to thrive, we need to set minimum expectations about how business will contribute to society and ensure it has a positive environmental and social impact. Otherwise, why would we give a business the permission to exist?"

While mandating morality sounds heavy-handed, Polman believes first movers will reap huge advantages. "Climate change, whilst the biggest challenge humanity faces, is also its biggest market opportunity, and worth at least \$12 trillion." Companies that put purpose first, he says, will lead the way in this new world. 



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# BANK ON CHANGE

# The case for funding more affordable green housing

Sustainably designed affordable housing projects are increasingly critical to meeting climate and housing crises

BY JOHN LORINC

 Toronto journalist John Lorinc writes about cities, sustainability and business.

In an urban landscape punctuated by glass condos and gleaming offices, the four city-owned parcels that have bobbed to the surface of Toronto's anxious conversation about housing affordability are nothing to look at . . . for now. They are mainly parking lots with a few desultory municipal buildings, located within steps of suburban or downtown transit stops – all choice examples of “lazy land” in a city struggling mightily with real estate speculation and crushingly low apartment vacancy rates.

These sites represent the beginning of a concerted drive by the City of Toronto to develop thousands of units of affordable rental apartments on publicly owned land – a program known as Housing Now that grew from a campaign pledge by Mayor John Tory to build 10,000 residential units on 11 swaths of vacant municipal land, including 3,700 that will be designated “deeply affordable.”

In many European cities, large segments of the population live in rental buildings that sit on public land. Indeed, the so-called Vienna model – a system for building affordable rental apartments on public land that goes back to the 1920s and is lauded for its accessibility – offers compelling proof that quality urban housing isn't just the product of market forces.



Toronto's plan has echoes of the Vienna model. The city will leverage its own real estate to attract apartment developers, both for-profit firms and non-profits. But they must be willing to sign on to unusual terms: the city will offer builders prime locations, financial incentives (reduced development charges, for instance) and 99-year lease agreements instead of outright land sales, as normally happens when public land is redeveloped. The quid pro quo is that property managers must guarantee affordable rents for a century. The builders that win the right to develop these first four sites will be made public this spring. CreateTO, the city agency responsible for these projects, expects construction to begin by late 2020 and will soon make other sites available.

While city officials are attaching all sorts of planning conditions to these deals, one in particular stands out: they must satisfy a set of demanding environmental performance benchmarks set out in the 2018 version of the “Toronto Green Standard” (TGS), which lays out the sustainable design requirements for new private and city-owned developments. That should translate into features such as better-insulated walls, less exterior window space, improved heating and ventilation systems and other measures meant to reduce a building's carbon footprint.

“It's important that if we have an environmental emergency and we have a homelessness and housing crisis, there's a way to leverage these sites and [address] both,” says Mark Richardson, spokesperson for HousingNowTO, an advocacy group tracking the roll-out of the program. “The upfront costs may be high for creating more sustainable buildings, but in the long term, the operating costs will be lower.”



## Forking out for sustainable affordable housing

Like a growing number of cities, Toronto last fall declared a climate emergency and is developing an ambitious plan to slash building-related emissions by 65% (from 1990 levels) over the next decade. But given mounting public concern about escalating real estate, condo and rental costs, it's also clear that sustainably designed affordable housing projects, such as those envisioned for the Housing Now sites, have become increasingly critical in meeting the city's climate and social-inclusion goals.

“Climate change and housing affordability are the two most difficult challenges facing communities and the country,” says Jake Stacey, vice-president of impact banking at Vancity Community Investment Bank, which is launching a “green commercial mortgage” this spring to finance projects that combine both objectives.

Older buildings will also have to pull their weight. Hundreds of slab apartment towers constructed in the 1960s and '70s will require deep energy retrofits (new windows, insulation, LED lights, airtight building envelopes, high-efficiency mechanical systems, etc.) to meet council's carbon reduction targets. But in the past, financing for such undertakings was elusive.





Some of the capital costs can be recouped by reductions in operating costs related to energy efficiency retrofits, but property owners need other sources of financing if they hope to make these fixes without hiking rents.

At various times, public funding programs have helped make the math work, but mostly on the margins. Case in point: since 2000, the Federation of Canadian Municipalities' Green Municipal Fund has provided \$5.1 million in grants and \$31.3 million in loans to a handful of social housing complexes looking to cut emissions.

The Atmospheric Fund (TAF) has provided \$10 million in financing for 22 energy-efficiency retrofit projects around the Greater Toronto Area, mostly older apartments, using a profit-sharing formula that sees TAF finance the capital expenditures and keep about 90% of the energy savings. The organization invests from an endowment established by the City of Toronto in the 1990s.

There are also a few sources of private sector financing. Vancity's lending program has underwritten more than 1,200 rooftop solar and geothermal energy projects for residential buildings. The bank also recently acquired CoPower, which sells green bonds that have financed about 400 energy-efficiency retrofits. Vancity's community green mortgages, says Stacey, will allow property owners to borrow against long-term value growth created in their buildings by energy-efficiency capital upgrades, such as tighter building envelopes, new mechanical systems and LED lighting conversion projects.

Yet new public dollars will likely deliver most of the needed investment. This spring, Ottawa will begin flowing about \$300 million from a 2019 federal budget commitment for a sustainable affordable housing program. Toronto Community Housing will receive \$1.3 billion from the \$55 billion National Housing Strategy for overdue repairs to its portfolio, with a portion of those funds earmarked for energy retrofits. A further \$300 million from the federal government will help municipalities offer retrofit financing for low-rise homes, and it seems likely that governments will add even more to these pots of funding to counter the recessionary impact of the coronavirus pandemic.

**“Climate change and housing affordability are the two most difficult challenges facing communities.”**

**—Jake Stacey,  
Vancity**

The Housing Now philosophy offers a variation on the theme. The city is aiming to entice developers by leasing prime land and providing breaks on development charges and property taxes in exchange for more sustainably designed projects.



This latest version of the TGS, according to one city estimate, will add about 3.5% to overall construction costs. Yet advocates say that such buildings in the long run are financially attractive because they slash energy expenses over decades. They also tend to be better constructed, meaning they require less age-related maintenance.

As it turns out, the implicit formula – additional upfront investment in sustainable design in anticipation of lower long-term operating and maintenance costs – is exceptionally well suited to companies and non-profits that own multi-unit residential buildings and don't intend to sell them any time soon. Yet it remains to be seen how hard Toronto officials will push the Housing Now developers to maximize the sustainability features of their plans. Richardson says CreateTO's evaluation rubric doesn't assign enough weight to the green design aspects of the proposals submitted by the development groups vying to build on these four pieces of land. In late February, CreateTO spokesperson Susan O'Neill said it was too soon to comment.

## Greening building codes

For many years, sustainable-design activists, especially in North America, complained that building codes were far too lenient and set minimum standards that allowed developers to erect structures that leaked energy in the form of heat. Many of the condo towers that have sprung up in Toronto in recent years fit the critique. Their perfunctory concrete balconies jettison heat, while the wall-sized windows are so cheaply made and shoddily installed that they either radiate cold or transform small apartments into convection ovens, depending on the season and time of day.

Voluntary green building certifications such as the Leadership in Energy and Environmental Design (LEED) system have historically been taken up by only a small percentage of builders. (Since 2004, only 4,350 buildings have been LEED certified in Canada, according to the Canada Green Building Council, which oversees the certification process. To put that figure in context, the country erected nearly 20,000 new buildings in December 2019 alone.) In the meantime, other, less demanding, voluntary standards have come on the market, such as Energy Star, which rates residential dwellings for energy efficiency.



But in the past decade or so, provincial governments in Ontario and BC have revised their building codes to make them more demanding in terms of energy efficiency and performance. Vancouver and Toronto have gone even further with their own municipal codes, joining a growing cohort of cities pushing to achieve or surpass 80% reductions in carbon emissions by 2050.

The TGS aspires to ensure that all new buildings will attain “near zero” emissions by 2030. The code offers builders more stringent voluntary features and then sets out an aggressive timetable for making those optional elements mandatory – a system known as a “step code.” One such change in Toronto’s green building standard: much tougher rules for the so-called wall-to-window ratio, a shift that will effectively end the practice of building towers clad almost entirely in glass.

According to Lisa King, the senior policy planner who oversees the TGS, the 2018 rules have attracted all sorts of builders interested in developing projects that satisfy the code’s tougher voluntary requirements. “What’s exciting, under [the newest version], which is difficult [to satisfy] because it has absolute targets, is that we’re seeing a quick adjustment in the market.” She says numerous proposals have come in from firms developing smaller commercial or office buildings as well as rental buildings.

#### Passive houses pass on cost savings

One public agency has decided to aim even higher. Toronto Community Housing Corporation (TCHC) has embarked on an ambitious plan to build 21 townhouses in Alexandra Park, a downtown affordable-housing complex, that meet the most demanding voluntary targets in the TGS – a set of benchmarks that are virtually the same as “passive house,” a German certification method associated with draft-free structures that have, among other things, thickly insulated walls, state-of-the-art windows and extremely low energy bills.



After an unusual competitive bidding process was completed last year, a consortium led by Tridel and Diamond Schmitt Architects won the contract, estimated to be worth about \$10 million. The tender process was out of the ordinary because the two finalists had to present their plans to community members, who voted on the one they wanted.

TCHC architect Michael Lam, who will be the senior construction manager, says the project will be the first of its kind in Greater Toronto. While residential passive-house developments, both for-profit and non-profit, have gone up in Vancouver, Ottawa and Hamilton, none have been completed in Toronto. “We don’t have a lot of experience with this,” Lam says.

Officials with TCHC, which is in the process of redeveloping and intensifying a number of its housing complexes, looked ahead five or six years and realized that more demanding green building codes, especially for city-owned projects, were inevitable as the TGS evolves. So Lam and his team decided to get ahead of the curve. “We thought, ‘We’ve got an incredible opportunity in our own revitalization projects,’ and this [the townhouses] was a fairly well-delineated project.”

Because certified passive-house projects feature extremely airtight designs, smart heating/cooling and humidity-control systems, natural interior materials that don’t cast off chemical smells, and all sorts of devices tasked with capturing and recycling waste energy (from hot water going down drains or from bathroom ventilation fans, for instance), the design process is far from conventional, Lam explains. The team’s architects, engineers, energy consultants and constructors must all work together to figure out how they’ll create structures that satisfy a demanding set of performance standards. “The objective of the building is so different that it requires a different design process and a different way of thinking about how architect, engineering and energy modeling work together,” says Lam. Detailed designs will be unveiled later this spring, and construction is expected to begin in about a year.

#### Municipal governments should be promoting green affordable housing by fast-tracking approvals and waiving development fees.

An Ottawa non-profit supportive-housing provider, Salus, went down this road a few years ago, with a 40-unit apartment complex for people with mental health issues. The project consists of 300-square-foot apartments with small kitchenettes, about a fifth of which are barrier-free. “At the time, [passive house] was not something that was on the landscape,” says Salus executive director Lisa Ker.

In 2013, Salus was trying to figure out what to do with a piece of donated land when a manager with a national affordable-housing umbrella group suggested they try developing a passive house project. Ker’s advisors predicted that the costs would be 6 to 9% above a more typical building. But, as she points out, Salus was the first in the market, so they had no real basis to evaluate. “We were very much an experiment.” However, Salus’s donors were very interested, and not just because of the environmental features. As Ker points out, Salus’s clients live on the fringes of society and are generally seen to be contributing little. Living in a cutting-edge project, she says, “was a great opportunity to show they could bring something to the equation.”

Salus’s architect, CSV principal Anthony Leaning, adds that passive house projects are notably comfortable to be in, and so the design could improve clients’ health and well-being. And, he says, the durability of the building materials means such projects “will last a long time.”



CSV is now working on numerous other passive house affordable-housing projects, and Leaning points out that Ottawa's public housing agency has also begun to promote aggressive environmental standards in its newest projects. Some of the federal government's \$55 billion 10-year National Housing Strategy funding will pay for large-scale energy-efficiency retrofits of older affordable-housing projects that need everything from new boilers to proper windows (in addition to funding 125,000 new housing units). "There's a shift happening," Leaning says of the affordable-housing sector's growing embrace of energy-efficiency design.

### Building on lessons learned

This story, of course, isn't just about the performance of individual buildings. HousingNowTO's Mark Richardson points out that the best strategy for reducing the emissions associated with any apartment building is to situate it close to a transit stop. Such locational decisions also bring financial dividends because the developer may not need to build a giant, expensive underground parking lot in such projects, provided municipal planning officials waive those requirements.

TCHC's Michael Lam hopes that as for-profit builders like Tridel gain experience with more environmentally ambitious projects, such as the townhouses in Alexandra Park, they'll begin to incorporate those energy- and cost-saving features in more market-oriented apartment building projects. "They're seeing the writing on the wall: 'Sooner or later, we'll be asked to do this.'"




Anthony Leaning says municipal governments should be promoting the case for green affordable housing by offering to fast-track the approvals of such projects and waiving development fees.

The Housing Now program that is attracting so much attention certainly has deployed all available carrots and sticks – more

demanding minimum-energy and ecological-performance standards, but also breaks on a range of charges, including property taxes. And as with TCHC's Alexandra Park venture, the eventual winning Housing Now bidders will include both for-profit and non-profit developers, meaning there's an opportunity for the design lessons to find their way into the private development sector.


Vancity's Jake Stacey adds that as recently as two years ago, few builders or agencies would have had the chops or the courage to attempt a net-zero or near-zero building, of any sort. But as more organizations gain experience in building or rebuilding affordable housing that meets the ambitious emission-reduction standards we'll need in the near future, other agencies, developers and financing sources will fall into line.

"There's a way to do it," she says. "I want to be out in front of this." 

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## 8 net-zero lessons for Canada from Europe's Green Deal

If Canada is serious about going net zero by 2050 it needs to learn all it can from the EU

BY ADRIAN HIEL

*Adrian Hiel is a Canadian dad, husband and writer who has spent the last 16 years in Brussels imbibing more Tintin, Gueuze and political dysfunction than he ever thought possible.*

The view from the floor-to-ceiling windows of the 11th-floor meeting room in the Berlaymont, home of the European Commission, is all orange tiled roofs and sad-looking chimneys in the January gloom. You'd think Brussels hadn't changed in 50 years. Inside, however, is a sleek, modern meeting room where 30 of us are gathered around an enormous table, next to

a glass wall of interpreter booths and another wall with rows of now-empty stadium seating.

As EU policy and communications manager for Europe's association of cities in energy transition, I am here to meet Europe's energy commissioner, Kadri Simson, along with representatives from businesses, cooperatives, NGOs, industry and think tanks who make up the Coalition for Energy Savings. Simson is responsible for the "renovation wave" component of Europe's Green Deal, as well as the offshore wind strategy, energy efficiency and other initiatives.

Big changes at an EU level, like the euro, come about as the result of years or decades

of painstaking planning. The European Green Deal, in the space of less than 24 months, has gone from NGO wish list to "the new defining mission" of the EU. Faster still has been the EU's response to the coronavirus. EU leaders have been clear that pandemic response must integrate a "green transition." And while the urgency of the pandemic will delay some aspects of the Green Deal by weeks or months, the overall package could receive a boost from increased lending and spending as the bloc lays out its plans for economic recovery once the crisis has passed.

Last fall, Canada set the same goal as the EU of reaching net-zero emissions by 2050.



But they're not at the same start line. Between 1990 and 2018 the EU reduced greenhouse gas emissions by 23%. Canada's GHG emissions rose by 18.9% between 1990 and 2017. If Canada is serious about reaching net zero by 2050 it needs to learn everything it can from the Green Deal. Here are eight lessons for Ottawa on how to design its own Green Deal.

### 1. Ride the "renovation wave"

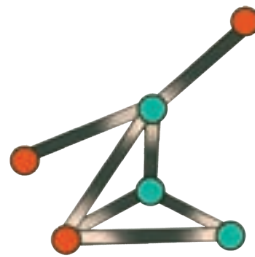
Renovating Europe's notoriously drafty old buildings is set to be the flagship program of the Green Deal. Buildings account for 40% of energy use, and the goal is to renovate 3% of buildings annually in the EU over the next decade. It's an easy idea to sell but harder to do, as current renovation rates languish between 0.4% and 1.2% in EU countries. Expect a focus on public buildings (schools, hospitals) and social housing. Public ownership makes renovation much easier (for more on greening public housing, see p. 14) and the benefits are much greater. Lower energy costs means more money for schools and health, and tackling energy poverty in social housing can bring huge social benefits.

Renovating private homes and apartment buildings with a mix of owners and renters is more complicated and will require carrots and sticks. The carrots will likely come in the form of low-cost financing, energy-efficiency mortgages and schemes to bundle lots of individual renovations into big projects to lower costs. Sticks might include a checklist of things that need to be done in five-year intervals for homeowners: improved insulation, new windows, new heating systems, for instance, that force people to upgrade their property over time. Or, it might be regulations mandating a deep energy retrofit when a building is sold or tenants change. As with the rest of the Green Deal, the details are still being worked out in Brussels. Either way, there could be pushback from property owners when the final proposal comes out in September. New buildings in the EU will be "nearly zero energy buildings" (NZEB) from the end of this year, and the target for net-zero buildings will be 2025 or earlier.

**Lesson for Canada:** Setting aggressive energy-retrofit targets for buildings will be key to Canada reaching net zero, too. This is one area where Canada can learn by watching what works and what doesn't in the EU and rapidly rolling out version 2.0 of the renovation wave. Aside from drastically cutting energy consumption, there should be a big boost for the construction industry (already worth \$141.6 billion in Canada in 2018) in urban and rural areas – especially amongst people who wouldn't benefit from

data-driven jobs. The Canada Green Building Council, in its Roadmap for Retrofits in Canada, recommends targeting large buildings, especially in Ontario and Alberta, for retrofits to slash GHG emissions by 30% by 2030 and potentially as much as 51% by 2050.

**The pandemic may delay aspects of the Green Deal, but the overall package could receive a boost in spending as the EU lays out plans for economic recovery once the crisis has passed.**



### 2. Fuel clean tech growth

European Commission President Ursula von der Leyen called the climate crisis a challenge that "we can turn into an economic opportunity . . . Europe has the first-mover advantage. The whole world increasingly needs clean technologies and solutions." She cited batteries, smart grids, green hydrogen power, offshore wind-power, clean steel and decarbonized gas as industries that "will create innovation, value and jobs."

Green jobs won't be just at the manufacturing and construction level. Digitalization is a key part of Europe's decarbonization strategy. Think smart grids that track when and where electricity is needed and drive down generation, or "5G corridors" for connected and automated mobility. Most excitingly, the EU Commission wants to create a "digital twin" of Earth that would "radically improve Europe's environmental prediction and crisis management capabilities." Above all, the goal is to form European digital champions that specialize in monetizing industrial data and ensure those companies are well placed to dominate the field globally.

**Lesson for Canada:** There's no decarbonization without digitalization, and this is one area in which Canada could be well placed, with its internationally recognized strength in artificial intelligence. That expertise, however, can be commercialized only if government policy ensures that a market forms quickly enough to maintain a global edge. Canada's world-class network speeds are also a strong asset in maximizing the technological opportunities of the energy transition, but creaking rural connectivity could leave part of the country behind. The EU is in a similar boat and unlikely to meet its 2013 goal of 100% broadband coverage by the end of this year.

### 3. Make it right

What and how things get made in the EU is set for a complete overhaul. Some energy-intensive sectors, like steel, chemicals and cement, will get investment to develop new, lower-carbon manufacturing techniques. Using hydrogen to make steel is a good example. Assuming that zero-carbon steel is more expensive than traditionally made steel, a carbon border tax will likely be implemented on imports to make sure they don't undercut European companies. A "sustainable products" policy will ensure that all products are designed with common principles that prioritize reducing and reusing materials before recycling them (such as the Netherlands' Fairphone) and prevent environmentally harmful products from being sold. As well, all packaging will have to be reusable or recyclable in an economically viable manner by 2030, with new rules for biodegradable and bio-based plastics.

**Lesson for Canada:** Canada needs to decide if it wants to sell goods to the world's largest economy or not. If it does, then it is going to have to read the fine print on the Green Deal closely and change the way it manufactures products. Biofuels, made using Canada's low-carbon grid, could lead to the production of sustainably sourced aviation biofuels that European



airlines will be increasingly anxious to use. Canadian products that don't meet these emerging standards either won't be allowed on the market or will be hit with a carbon border tax or something similar. If Canadian manufacturers embrace this change, they will have privileged access to 500 million consumers.

#### 4. Bet the farm on greener food systems

**E**U food makers are going to be biting off some big changes under the Green Deal. Foods will be grown with drastically fewer pesticides, antibiotics and fertilizers, and sales tax could be lower on things like organic fruit and vegetables. Eating locally produced food is also expected to be strongly encouraged. As the world's largest importer and exporter of food, the EU is also looking at raising international food standards; in particular, there will be pressure to curtail soybean and beef imports from regions that don't promote biodiversity or reduce pesticide use.

**Lesson for Canada:** Canadian farmers are already torn between their biggest market, the U.S., and the higher standards in the EU. Canadian agricultural exports to the EU fell 15% after the Canada-EU Comprehensive Economic and Trade Agreement (CETA) was signed, thanks to Europe's ban on antibiotics and growth hormones. If Canada wants to improve its trade deficit at all in the coming decades, it will have to raise the bar on greening its farms (see "Seeding Climate Action on Canada's Farms," p. 50).

#### 5. Rev into emissions reductions

**T**he Green Deal aims to move substantial amounts of freight off roads and onto rail and rivers. Aviation and maritime fuels face the prospect of new taxes, while emissions from those sectors may soon become subject to payments under the Emissions Trading System. The delicate matter of road-pricing is on the table, and rural EV-charging infrastructure and alternative fuels can look forward to direct financial support. Car emission standards will be reviewed in 2021. Already, tough new standards (set in 2009) that level hefty fines on automakers are being phased in for 2020. The result has been a massive increase in the number of battery-electric and plug-in hybrid cars available in Europe. Groupe PSA (Peugeot, Citroën, Opel, Vauxhall and others) sold more electric cars in January 2020 than in all of 2019. Of course, the pandemic has since stalled that growth. The main European auto industry association has been lobbying to have stricter emissions standards delayed, but VW, Daimler and BMW have said they plan to hit the ambitious targets.

**Lesson for Canada:** Canada may not think it has the market size to push car manufacturers, but with more than two million new cars purchased each year, it is a larger market than California, which is setting its own fuel economy standards. Canada can put some teeth in its pledge to ban internal-combustion vehicle sales by 2040 and ensure that its ambitious clean-fuel standard is implemented with a sense of urgency.

**Canadian products that don't meet the EU's emerging standards either won't be allowed in or could be hit by a carbon border tax.**



Canada could also follow the EU's lead on setting ambitious standards and levying steep penalties on automakers that fail to keep up with the program. This would result in a massive uptake in electric vehicles without costly

cash rebates for EV purchasers. Canadian auto sales to Europe rose 83% in 2018 thanks to CETA; if Canada wants to maintain that growth in the coming years, it will need to encourage more EV production, which is almost non-existent in the passenger market at the moment.

#### 6. Go local to get community support

**E**uropeans might have a reputation for being tree-hugging, planet-loving people, but the scope of these changes promises to challenge even their willingness to embrace sustainability. Senior officials have warned of a "tectonic" shift and compared the Green Deal to changes brought about by the industrial revolution. To cope with this, the Green Deal envisages a big effort to engage with citizens to ensure they "remain a driving force." This is known as the Climate Pact, and the Covenant of Mayors Europe will play a central role in rooting the Commission's high-level objectives in the local community.

**Lesson for Canada:** It's no secret that parts of Canada are less keen on an energy transition than others. Emulating something similar to the Climate Pact to transform headline ambitions into local improvements in infrastructure, air and water quality and other tangible benefits, particularly in rural farming communities, will go a long way to making a Canadian Green Deal more politically palatable.

#### 7. Bank on financially savvy climate spending

**T**he European Commission is more of a regulator than a government. Its strength is setting the rules for the game rather than spending money the way a national government does. Its budget is about 1% of Europe's gross national income. So the headline of €1 trillion in green financing between 2020 and 2030 is substantial. About half the money comes from the regular EU budget – 25% of the EU budget is expected to be spent on climate action. Then there is an existing fund, which will be rebranded and used to leverage €280 billion and another €143 billion of public and private investment, specifically to help regions most reliant on carbon intensive activities. It's an impressive amount of financial heft when the total amount of new money is a mere €7.5 billion over the next seven-year budget.

A major player in the leveraging and investment is the European Investment Bank (EIB), which announced in November a phase-out of all fossil fuel funding and a ramp-up to 2025, when 50% of its lending



will be spent on climate change projects. It is the EU's "climate bank." A "green taxonomy" was agreed upon last year that clearly defined what constitutes a green investment to help funnel interested investors. Non-financial risk disclosure rules will be updated to force companies to come clean on the risks they face and actions they are taking to mitigate climate risk. They propose raising additional money with a new tax on non-recyclable packaging waste and rolling out a market for green bonds.

**Lesson for Canada:** The figures involved in the energy transition can seem large, but making systemic changes to the financial system can bridge the gap between purse strings and ambition. The Canada Infrastructure Bank already has a similar mandate to the EIB, but reimagining the much larger Business Development Bank of Canada as Canada's climate bank would be a boon to green businesses.


## 8. Act soon – it's cheaper than stalling

Economic opportunities aside, climate change is still a bad thing. The EU Commission estimates that a high warming scenario of more than 3 degrees C will result in GDP losses in EU countries ranging from 2% in northern Europe to more than 8% around the Mediterranean as productivity dives and mortality climbs from heat, forest fires, floods and other natural disasters. Climate neutrality, however, is expected to boost GDP by 2% and create millions of jobs.

**Lesson for Canada:** Canada is already warming twice as fast as the rest of the world, and average temperatures have increased 3.06 degrees since 1948. The cost of coping with the fallout of a warming world will be far more than the cost of climate neutrality.

The three-hour meeting in the Berlaymont is up, and we've barely had enough time to have a shallow discussion of the issues involved in energy efficiency. Much like this article, there just isn't time and space to go into all the details and all the different initiatives because of the Green Deal's enormous scope, size and ambition.

Two things are clear though. One, Canada has a lot of catching up to do if it is going to hit net zero by 2050. The head of the Business Council of Canada, Goldy Hyder, agrees, recently telling the government "Let's get on with it," with respect to the net-zero target and calling on business, government and labour to "lay down the arms on this issue and find a way forward."

And two, in the EU's Green Deal, Canadians have a template that can drastically improve their prospects of getting there. 

# Green Deal plans

There are 47 initiatives listed in the Green Deal communication, with the aim of slashing emissions and creating a climate-neutral continent by 2050. Here are the top 10 that haven't already been mentioned.

### Carbon border tax

A carbon tax, likely on just a few sectors to start, to ensure carbon-intensive industry doesn't move abroad.

### Strategy for smart sector integration

Matching industries with complementary energy profiles – think data centres and district heating.

### EU industrial strategy

Creating European champions and funnelling subsidies into priorities like e-mobility, hydrogen, health, the Internet of Things and microelectronics. Decarbonization of energy-intensive sectors such as cement, steel and chemicals.

### Circular economy action plan

Designed to decouple resource use from growth. Will halve waste, reduce embodied carbon in construction and put in place sector-specific plans for textiles, food and transport.

### Waste reforms

Tackle over-packaging, mandatory recycled content. New EU-wide model for separate waste collection and new rules on waste shipments and illegal exports.

### EU biodiversity strategy for 2030

Increase biodiversity-rich land under protection, restore damaged ecosystems, "green" cities and increase urban biodiversity.

### EU forest strategy

Increase absorption of CO<sub>2</sub>, reduce forest fires; focus on afforestation, forest preservation and restoration.

### Trans-European Network – energy regulation review

Ensure pan-European energy infrastructure is prioritized: smart grids, hydrogen networks, energy storage and carbon capture, storage and utilization.

### Zero-pollution action plan

Tackle urban runoff of microplastics, chemicals and pharmaceuticals; revise air quality standards; create specific measures to help cities improve air quality.

### Research and innovation

"Green Deal Missions" will help deliver large-scale changes in areas such as adaptation to climate change, oceans, cities and soil. This will entail funding research and start-ups and forming industry-government partnerships in batteries, clean hydrogen, circular bio-based sectors, food, urban transport and more.



## Banking on a greener future?

Sustainable funds are proving more resilient to crisis – but not every bank carries them

By Adria Vasil

### HOW CLEAN ARE THE BANKS' INVESTMENTS?

Sustainability Score*	Renewable Loans (\$M)	Oil & Gas Loans and Acceptances (\$M)	Sustainable Solutions Investments (\$M)	Harmful Investments (\$M)**
<b>BMO</b>	\$3,900	\$9,168	\$17,812	\$17,812
<b>RBC</b>	\$2,200	\$16,406	\$14,690	\$14,690
<b>CIBC</b>	\$1,500	\$7,439	\$3,986	\$3,986
<b>TD</b>	\$2,563	\$6,579	\$9,833	\$9,833
<b>Scotiabank</b>	\$0	\$14,800	\$6,430	\$6,430

Once relegated to the fringes of crunchy granola credit unions, ethical investing is now stepping into its power. From millennials wanting to purchase with purpose all the way up the corporate ladder to the world's largest investment houses vowing to put climate action at the heart of investment decisions, responsible investing is quickly rising to become the defining investment issue of the new decade.

Of course, that was before the coronavirus began pummeling the economy. COVID-19 is only deepening our desire to support companies that behave nobly and put people and planet ahead of profits.

It just so happens that corporations with better environmental, social and governance (ESG) scores are proving themselves to be more financially resilient during the pandemic. Yes, sustainably minded funds have taken

### A SHORT HISTORY OF RESPONSIBLE INVESTING By Toby Heaps

#### 1758

Religious Society of Friends (Quakers) Philadelphia Yearly Meeting prohibits members from participating in the slave trade – buying or selling humans.

#### 1760

John Wesley, the founder of the Methodist movement, delivers his sermon "The Use of Money," outlining the basic tenets of social investing, including we "ought not to gain money at the expense of life or by losing our souls."

#### 1928

Philip Carret launches the Fidelity Mutual Trust (which became the Pioneer Fund), the first publicly offered socially responsible investment fund. With a 91-year track record, it has earned average annual returns of 11.7%, besting the S&P 500 Index's 9.84% tally to the end of September 2019.

#### 1960

Martin Luther King Jr. proposes that the AFL-CIO labour union invest pension assets in housing, to lessen economic inequality. The Office of Investment was then established to ensure that union pension funds were invested responsibly, leading to the AFL-CIO Housing Investment Trust. With more than \$4.5 billion in net assets, the trust has helped finance more than 100,000 affordable housing units.

#### 1966

*Rules for Radicals* author Saul Alinsky convinces the owners of 39,000 Eastman Kodak shares to sign over their proxy votes to be used as leverage to advocate for greater opportunities for minority communities, leading the company to adopt a minority hiring program.

#### 1968

The Medical Committee for Human Rights acquires shares in Dow Chemical and submits a proxy statement proposal to amend Dow's corporate charter to prohibit sales of napalm to any buyer unwilling to give reasonable assurance that the substance would not be used against human beings. Dow sought unsuccessfully to omit the proposal and quietly ceased production of napalm in 1969.

#### 1970

Consumer protection advocate Ralph Nader helps launch the Campaign to Make General Motors Responsible (Campaign GM). Wielding just 12 of GM's 285 million shares, Campaign GM submits three shareholder proposals: amend GM's charter to limit operations to those consistent with "public health, safety, and welfare"; establish a shareholder committee on corporate responsibility; and include public-interest representatives on GM's board of directors.



a big hit because of COVID-19, but Bloomberg found that they have been outperforming their conventional peers. Bloomberg's analysis of 2,800 responsible investing (or RI, also known as sustainable, socially responsible or ethical investing) funds globally found that the average RI fund has fallen by about 12% this year as of March 12. That stings, but it's just half the decrease seen by the S&P 500 Index over the same period.

According to Ipsos polling released by RBC Global Asset Management in January, two thirds of Canadians surveyed say they're interested in RI. Nearly three out of four believe RI is "the way of the future."

So why do so few Canadian banks offer any sustainably focused investing options?

### Most bank advisors are poorly informed about ethical options

*Corporate Knights* anonymously visited Toronto branches of the Big Five banks in January and inquired about ethical investing. While some bank advisors were enthusiastic and fairly well informed, many advisors didn't know whether their banks offered ethical investments or what

#### 1971

Paul Neuhauser, founding member of the Interfaith Center on Corporate Responsibility, files the first shareholder resolution on behalf of a religious organization, requesting that General Motors withdraw its business from South Africa until apartheid is abolished. In 1986, with pressure building, GM divested its South African assets.

#### 1978

Jeremy Rifkin and Randy Barber publish *The North Will Rise Again: Pensions, Politics and Power in the 1980's* as a movement builds to democratize pension funds to serve a more holistic economic function.



## Big Five ethical investing report card

We visited Toronto-area branches of the Big Five banks and asked advisors what ethical or sustainable investment options they offered. Here's what we found:

### BMO

**Ethical options:** Branches offer BMO's Sustainable Opportunities Global Equities mutual fund, as well as a Women in Leadership fund. There are eight new ESG ETFs for self-directed online accounts.

**Fossil-fuel-free or climate-conscious funds:** Yes, the BMO Sustainable Opportunities fund. The new ETFs are not fossil fuel-free. Sustainability knowledge of advisor: The personal bank associate was enthusiastic about BMO's sustainable opportunities fund, explaining that she invests in it herself, but she cautioned that it is mid-to-high risk and is best for longer-term investments. A financial planner followed up via email to discuss ESG options further.

**Cost of values-aligned portfolio:** Fees vary, but the Sustainable Opportunities fund has a somewhat lower fee than comparable BMO funds. The ESG ETF fees are also priced lower than many non-RI equivalents.

**Bank loans and investments in dirty vs. clean companies:** BMO has both the biggest renewable-energy loan book and sustainable-solutions investment book among the Big Five, but it has the largest amount invested in companies classified as "harmful."



### RBC

**Ethical options:** RBC's Vision line uses ESG filters to determine holdings while screening out weapons makers, as well as traditional sin stocks like tobacco and alcohol. RBC Vision also has a Women's Leadership fund. Fossil-fuel-free or climate-conscious funds: Yes, the RBC Vision Fossil Fuel Free Global Equity Fund. Though a financial planner at one branch said the bank doesn't offer entirely fossil-free options, suggesting that omitting a whole sector could limit the opportunity to grow. RBC's Vision Fossil Fuel Free fund actually outperformed RBC's Global Equity Fund in both 2018 and 2019.

**Sustainability knowledge of advisor:** The financial planner was well versed in the Vision line (besides being unaware of RBC's fossil-free fund) and enthusiastic about the Vision balanced fund, saying it has outperformed RBC's regular balanced fund ("being green is saving companies a lot of money down the road").

**Cost of values-aligned portfolio:** Varies, but many are slightly lower than conventional funds.

**Bank loans and investments in dirty vs. clean companies:** Canada's largest bank has the highest total amount of oil-and-gas loan exposure on its books (\$16.4 billion). That's more than seven times more than its renewable loans, which gets it into trouble with environmental activists, though it also has the biggest ratio of investments in sustainable solutions to harmful companies among the Big Five.

those offerings entailed. Some advisors downright discouraged us from putting our savings into RIs. Notably, BMO and RBC were the only two banks that had dedicated RI funds.

The Toronto-based Responsible Investment Association (RIA) did its own polling with Ipsos in 2019 and found that while 79% of Canadian respondents would like their financial services provider to inform them about RI options, only 23% have been asked by their banks if they're interested in RI. That helps explain why only a quarter of Canadians say they already have responsible investments, according to stats from Wealthsimple, BMO and the RIA.

In the U.S., meanwhile, new investments into sustainable funds quadrupled in 2019 compared to 2018 (pulling in a record US\$20.6 billion in new money last year), and European investments doubled to a record-busting €120 billion, according to Morningstar.

### Push to regulate the wild west of green investing

The tricky part for would-be purchasers is figuring out what investments genuinely align with their values. One CIBC branch advisor

told *Corporate Knights* that “all the mutual funds we offer have gone through these ESG checks.” Ditto for all of RBC’s funds around the globe. That doesn’t mean they screen out any dubious companies or sectors.

Only exclusionary funds with negative screens do that – and they may just screen out, say, tobacco and gambling but not thermal coal and oil. Part of the problem is there’s no universal standard for how terms like “ESG,” “low carbon” and “fossil-fuel free” are defined or applied, leaving funds vulnerable to “impact washing.”

Many Canadian ethical fund managers choose not to screen out fossil-fuel companies, instead investing in those they consider sector leaders. Which is fine for some responsible investors – if funds are transparent about it. But after the RIA received flak for listing fossil-fuel-free funds in its directory that were later exposed to contain oil and gas companies, the association is now considering creating a certification process for RI funds in Canada.

It gets even more muddled when retail investors start exploring the wider world of self-directed online trading accounts and

robo-advisors (digital platforms such as apps that rely on software to offer financial advice), which often offer access to a number of American and international ETFs, or exchange-traded funds. (Branch-level bank advisors are generally not able to sell ETFs despite their booming popularity.) One ETF known as iShares MSCI ACWI Low Carbon Target ETF was called out for having holdings in Shell, Chevron and a number of other high-carbon companies.

To counter potential “impact washing” in Europe, the EU sets standards for the labelling of financial products, mandating that financial advisors disclose the sustainability risks of a finance product to investors, “regardless of the sustainability preferences of the end investors.”

Canada’s federally convened Expert Panel on Sustainable Finance recommended we do something similar here. The panel (which included Tiff Macklem, a Scotiabank director and Rotman School of Management dean, as well as RBC director Andy Chisholm) recommended that Finance Canada create “financial incentive for Canadians to invest in accredited climate-conscious products through their registered savings plans.”

## A SHORT HISTORY OF RESPONSIBLE INVESTING

### 1980s

Widespread divestiture of economic holdings in South Africa is directly credited with the collapse of apartheid and the Afrikaner minority government. By 1993, when the De Klerk administration took steps to end apartheid, \$625 billion was being screened to exclude investment in South Africa.

### 1989

In the wake of the Exxon Valdez oil spill, social investment executive Joan Bavaria mobilizes a coalition of investors and environmentalists to launch the Valdez Principles, a green code of conduct for business. More than 50 companies endorsed the principles, including 13 Fortune 500 companies that adopted their own equivalent environmental principles.

### 2006

United Nations Secretary-General Kofi Annan rings the bell at the New York Stock Exchange to launch the UN-supported Principles for Responsible Investment, which now counts investors with US\$86 trillion in assets under management.

### 2008

The World Bank launches the first green bond. In 2019, green bond issuance topped out over US\$200 billion.

### 2012

Bill McKibben’s article in *Rolling Stone* magazine, “Global Warming’s Terrifying New Math,” based on work by the non-profit Carbon Tracker Initiative, launches the fossil fuel divestment movement. By 2020, investors with assets of US\$12 trillion had pledged to divest some or all of their fossil fuel holdings.

### 2015

Bank of England Governor Mark Carney delivers his “tragedy of horizons” speech, defining climate change as a financial stability issue. By 2020, investors representing more than US\$120 trillion in assets had signed on in support of the Task Force on Climate-related Financial Disclosure, an initiative led by Carney and Mike Bloomberg.

### 2018

Larry Fink, CEO of BlackRock, the world’s largest asset manager, writes in his annual letter that companies had better contribute to society or risk losing BlackRock’s support.

## How green are the banks' own investments and loan books?

Many climate-conscious investors will also want to know just how their banks are dishing out their own money. All five banks have signed on to the UN-supported Principles for Responsible Investment, promising to fold ESG factors into investment decisions, though research by *Corporate Knights* has found that while the Big Five invest billions in sustainable-solution companies, they also invest billions in controversial weapons, for-profit prisons and severe environmental violators, as well as a number of other themes that would register as egregious on many responsible investors' radars. All five also have loan books bulging with fossil fuels in relation to their renewable energy lending, putting them at odds with global money trends.

With former Bank of Canada governor Mark Carney cautioning that firms that ignore the climate crisis "will go bankrupt without question," Canadians should be able to readily invest their retirement savings in environmentally-conscious options, sustainable finance champions say. 🦄

### 2019

EU governments and the European Parliament sign a landmark agreement on how to classify green investments — the first time a global regulator has designed a labelling system for what counts as a sustainable financial product.

### 2020

Morningstar reports that sustainable funds, which invest based on environmental, social or governance themes, pulled in a record US\$20.6 billion in new money in 2019, four times higher than in 2018, which was the previous record.

## CIBC

**Ethical options:** No specific RI funds. CIBC's VP of public affairs says that "ESG factors are included in our investment process across all funds." Fossil-fuel-free or climate-conscious funds: No.

**Sustainability knowledge of advisor:** Initially, the branch manager said that CIBC has some ethical funds that "don't invest in tobacco companies or oil companies," but the manager and a financial advisor weren't aware of specifics, so they placed a phone call. "We don't get asked this question frequently," the manager said. After their call, the manager updated earlier comments: "The good news is there's no specific mutual funds that actually do that since all the mutual funds we offer have gone through these ESG checks."

**Cost of values-aligned portfolio:** N/A.

**Bank loans and investments in dirty vs. clean companies:** CIBC says all its funds are filtered through an ESG lens, but it has \$2.7 billion, or 6.4% of assets, invested in companies flagged for harmful products and activities, including palm oil deforestation and severe human rights violations. On the bright side, 9.4% of its investments are in sustainable-solution providers, companies that earn more than a fifth of their revenue from themes like renewable energy and electric cars. On the loan side, CIBC's exposure to oil and gas companies is almost five times as large as its renewable energy book.

## Scotiabank

**Ethical options:** No responsible funds are available at branch level, though Scotiabank said in a statement that it has "considered" ESG factors in the investment process and that for direct investors, "Scotia iTRADE offers sustainable investing tools [online]."

**Fossil-fuel-free or climate-conscious funds:** No.

**Sustainability knowledge of advisor:** The personal banking advisor was unaware of any sustainable options and returned five minutes later to confirm that no options exist that the bank's financial advisors were aware of.

**Cost of values-aligned portfolio:** N/A.

**Bank loans and investments in dirty vs. clean companies:** Scotiabank dishes out the second-most oil and gas loans (\$14.8 billion), compared to zilch in loans to renewables.

## TD Canada Trust

**Ethical options:** TD Canada discontinued its sustainability funds in 2013, and at this point there are no specific RI-themed funds available to Canadians at branch level. TD did not respond to our request for comment.

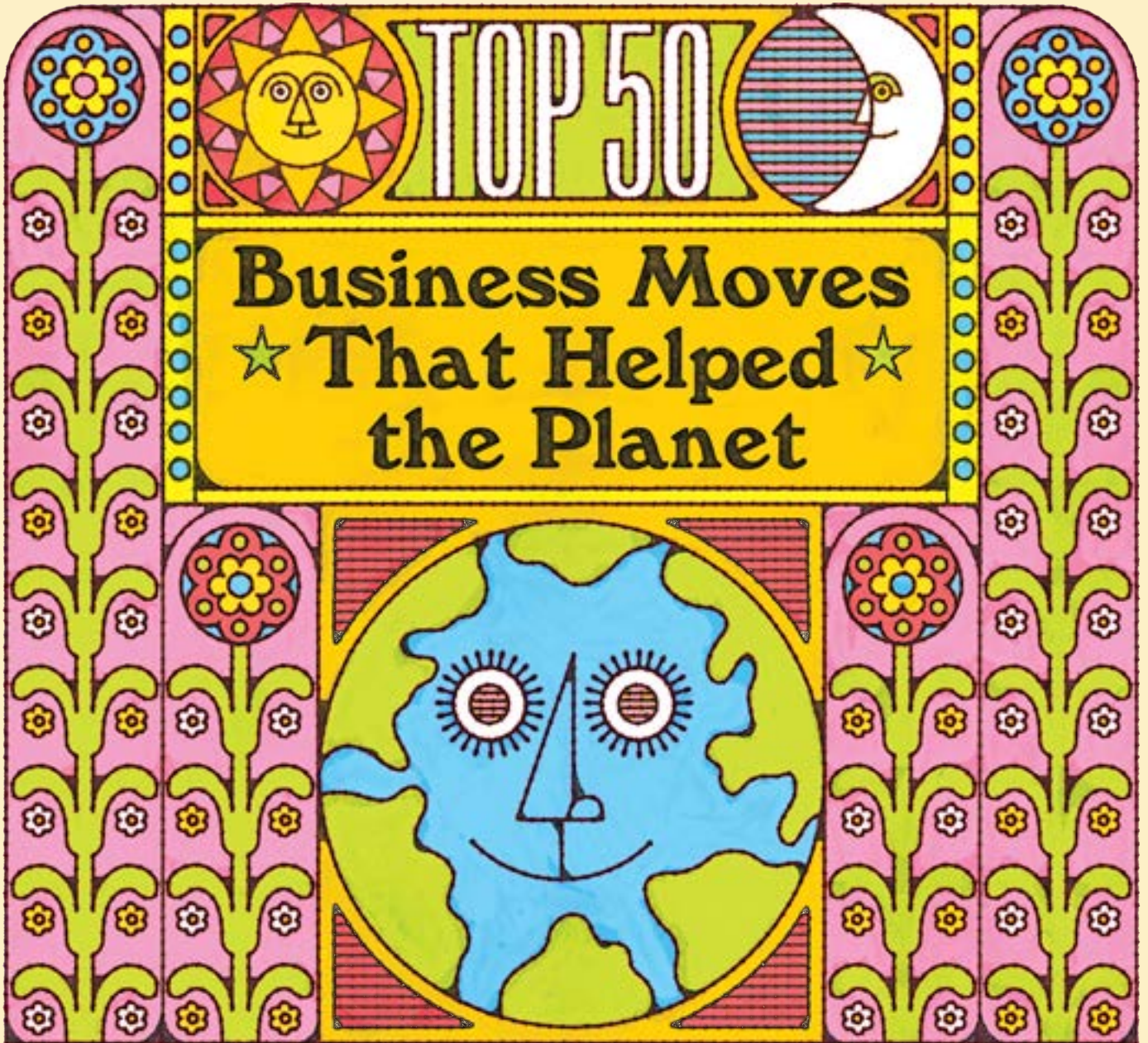
**Fossil-fuel-free or climate-conscious funds:** No.

**Sustainability knowledge of advisor:** One bank advisor was blunt, saying, "To be completely honest, most socially aware investment funds don't make a lot of profit. As such, we don't have funds that invest in these companies."  
**Cost of values-aligned portfolio:** N/A.

**Bank loans and investments in dirty vs. clean companies:** TD has the smallest oil-and-gas loan book of the Big Five, but its investment book is another story. Among the Big Five, it has the worst ratio of investments in sustainable-solution companies to harmful companies.







In the 50 years since **Earth Day** was launched, which companies stepped up to deliver green solutions?

By **Adria Vasil, Laura Väyrynen and Toby Heaps**

**It's been 50 years since the first Earth Day in 1970**, when 10 million people took to the streets for a national teach-in on the environment. At the time, questions were mounting about the lead fumes puffing out of tailpipes, the Cleveland river soaked in industrial waste that had caught on fire the year prior, and the thousands of dead, oil-soaked birds that had washed up on the beaches of Santa Barbara in the largest oil spill in American history. That April, 10% of the U.S. population came together to voice their outrage and "demand a new way forward for the planet." By the end of the year, the Environmental Protection Agency had been founded, ushering in an era of groundbreaking clean-air, water and endangered-species regulation that would reshape corporate America's relationship with nature, providing a cornerstone for modern environmental policy.

The business community hasn't always been an ally of the planet, but it would have a significant role to play in the next half century of environmental action – including developing and deploying solutions, on a global scale, to problems they quite often had a hand in creating.

There is a lot to reflect on from the last 50 years. Amidst the COVID-19 pandemic, it's worth remembering we have a pretty good track record of fixing planetary-scale problems when we set our minds to it:

- The destructive pesticide that prompted Rachel Carson's seminal book *Silent Spring*, DDT, was banned in 34 countries, leading to the dramatic comeback of bald eagles, peregrine falcons and osprey.
- We are just two countries away from the global elimination of lead in gasoline, which the UN says has resulted in US\$2.4 trillion in annual benefits, 1.2 million fewer premature deaths, higher overall intelligence and 58 million fewer crimes (thanks to lower levels of lead in people's blood).
- CFCs, once found in every fridge and aerosol can, were phased out globally, with recent evidence showing that the hole in the ozone layer over Antarctica is beginning to repair itself (though CFCs leaking from old appliances and such have created a recent upswing in emissions).
- Emissions of sulphur dioxide and nitrogen oxide were capped, eliminating the scourge of acid rain that threatened to blacken our forests and kill our lakes.
- Ontario became the first government to ban coal power, eliminating more greenhouse gases than any action to date in North America.

## Three things have become clear over the last 50 years:

1. Deadly environmental problems require regulation, often in the form of banning offending pollutants.
2. Unlike, say, the Olympics, the cost of tackling environmental problems usually ends up being less than what anybody thought it would be, as former U.S. Treasury Secretary Larry Summers puts it, partly because projected costs are inflated by those who have a vested interest in the status quo and unexpected innovations drive down costs.
3. Business can innovate and deliver solutions at scale when governments get the regulations right.

So in honour of the 50th anniversary of Earth Day, *Corporate Knights*, Earth Day Canada and Earth Day Initiative decided to launch an open-nomination process to determine which corporate actions have had the biggest impact on improving the state of affairs on our planet.

The final list includes a few companies that reflect the visionary souls of their environmentalist founders, like Patagonia, Body Shop and Interface flooring. There are also some mad-scientist disruptors and brown-to-green corporate chameleons in the bunch. But by far the most common type of hero is the early mover, those companies that heard the bell tolling before the rest of their peers and made a beeline to change their destructive ways – and, collectively, the trajectory of life on Earth.

Some of the early movers were major emitters under the glare of heavy activist campaigning that brokered peace deals with non-profits and regulators. Others were entrepreneurs who saw which way the wind turbines were blowing or scalars who used their market power to corral large segments of the economy into greener pastures.

Many companies didn't make the cut. DuPont was nominated for breaking ranks with other chemical giants by backing the Montreal Protocol's phase-out of ozone-depleting CFCs (a critical move from a

company that had made the chemical in great quantities for decades), but it spent years aggressively undermining earlier domestic bans in the U.S. GM was the first North American automaker to say it would make cars that run on both unleaded and leaded gasoline, but the car company (which invented leaded gas in 1921) also fought tooth and nail against regulations that would effectively outlaw leaded fuel altogether. Another nominee, General Electric, made waves when it launched its multibillion-dollar Ecomagination branding initiative in 2005, but it ultimately failed to heed its own marketing and today still earns just a tenth of its revenue from what could be considered "green" sources. And more recently, BlackRock's newfound climate investment convictions are most welcome, but it's still the world's premier funder of destructive fossil fuel activities, and when it has a chance to shift corporate behaviour through shareholder votes, it more often than not has sided with management over the climate.

The final top 50 actions that made the list are examples of moments that reveal the profound impact corporations can have on the planet when they lead change rather than follow it. The Top 50 isn't an endorsement of a company's entire corporate legacy. It's a recognition that one act – one sustainability chief's initiative, one big-tent collaboration with non-profits, regulators and like-minded companies, one sustainably minded CEO – can shift the tides.

In reality, a whole cohort of players made each action possible – educators and agitators (i.e. persistent scientists, activists and journalists) as well as implementers and navigators (behind-the-scenes public servants and employees). Combined, their efforts have helped clear toxic pollutants, curb gigatonnes of climate-cooking carbon, conserve landfills of waste, preserve acres of forest and save countless species, giving our grandchildren a fighting chance to call a thriving planet home on Earth Day's 100th anniversary.

In the meantime, the whole purpose of this year's Earth Day, explains co-founder Denis Hayes in a phone call with *Corporate Knights*, "is to try to create enough pressure on governments and companies around the world to be aggressive in their leadership on [climate action]."

"In my ideal world," says Hayes, "we would look back on 2020 as an inflection point for carbon emissions . . . I'd like to see us having designed an economy that can operate with equilibrium."

While the pandemic is the most urgent threat facing us this year, the climate crisis represents the greatest challenge to the future of humanity – and also vast opportunities for those disruptors and scalars that deliver closed loop, clean economy solutions. We hope this Top 50 list will inspire more leadership at a time when the planet and every living entity on it needs it most.

Open nominations for the Top 50 were held in February. In addition, *Corporate Knights* contacted close to 100 thought leaders in various sectors and industries to get their input. A team of expert advisors\* helped reduce the shortlist to 150, then a panel of judges voted on their top 50 picks.

## The following judges helped us select the Top 50:

- Pierre Lussier**, director of Earth Day Canada  
**John Oppermann**, executive director of Earth Day Initiative  
**Toby Heaps**, CEO and co-founder of *Corporate Knights*  
**Adria Vasil**, managing editor, *Corporate Knights*

\* Adèle Hurlley, Andrew Craig, Andy Behar, Beatrice Olivastrì, Blair Feltmate, Bruce Lourie, Céline Bak, Charmaine Love, David Love, David Runnalls, David Wheeler, Frances Edmonds, Frank Frantisak, Geoff Love, Greg Payne, Hazel Henderson, Hunter Lovins, Ivo Mulder, Jane Ambachtsheer, John Cook, John Elkington, Julia Christensen-Hughes, Mark Rudolph, Mark Tercek, Michael de Pencier, Monte Hummel, Nick Parker, Peter Love, Ralph Torrie, Shanta Chatterji, Simon Zadek, Tyler Hamilton, Valerie Chort, Vicky Sharpe.





F1.

## Patagonia

**1973** First major clothing company to put protecting the planet at core of its brand

Patagonia wasn't always a green clothing company per se; it made durable clothing for wilderness enthusiasts. The former maker of mountaineering tools had stopped selling climbing pitons because they damaged rock faces and became the first major clothing brand to donate 10% of profits (and offer training) to grassroots eco groups (1986), the first to make clothes out of recycled pop bottles (1993) and one of the first to convert its entire cotton line to organic cotton (1996). It has stood apart by putting environmental activism at the heart of its branding.

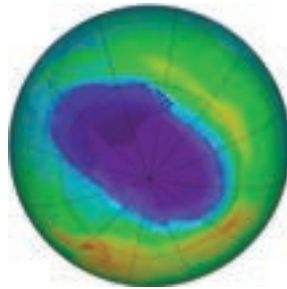
**Catalyst:** Patagonia's mountain-climbing founder, Yvon Chouinard, rooted his company in a "leave no trace" philosophy. However, it wasn't until 1988, when formaldehyde off-gassing from its clothing made workers at one Patagonia store in Boston sick, that Patagonia began investigating the environmental impacts of its supply chain.

**Impact:** Nearly 70% of its product line now comes from recycled materials, but the company's impacts reach far beyond its own supply chain. Among its achievements: it co-founded 1% for the Planet (which has 1,200 members in 48 countries that donate 1% of profits to environmental organizations) and the

Sustainable Apparel Coalition, which drives impact reductions at over 200 companies with combined revenues of \$500 billion. It's also a recipient of the 2019 UN Champions of the Earth award.

**To Do:** 86% of Patagonia's emissions come from the creation of its product materials. It's gunning to be carbon neutral by 2025 by using only recycled or renewable materials (including more ocean plastic) and switching to renewable energy in all its operations.

F2.



## SC Johnson

**1975** First to ban ozone-destroying CFCs from aerosol products

Three years before the U.S. banned the use of chlorofluorocarbons (CFCs) in aerosol propellants and more than a decade before the Montreal Protocol called for a global phase-out, SC Johnson became the first aerosol maker to pull all products containing CFCs from shelves.

**Catalyst:** Mounting scientific evidence, including Nobel Prize-winning research by Paul Crutzen, Mario Molina and Sherwood Rowland, triggered a 25% drop in sales in CFC products in the first six months of 1975 and prompted a Natural Resources Defense Council campaign against CFCs.

**Impact:** As one of the first large companies to take a public stance against a substance that harmed the environment, SC Johnson helped build support among corporations for broader bans.

**To Do:** The maker of Ziploc, Glade and Drano could green more ingredients and ramp up its use of post-consumer recycled content (at 11% as of last year).

## Body Shop

**1976** Jump-started wave of conscious consumerism and cruelty-free cosmetics

Under its crusading founders, Anita Roddick and her husband, Gordon Roddick, the Body Shop set a new standard for "retailing with a conscience," trailblazing the sourcing of fairly traded ingredients that weren't tested on live animals.

**Catalyst:** Roddick's travels on what she called the "hippie trail" through the South Pacific and Africa seeded her interest in sourcing natural, fairly traded ingredients.

**Impact:** The company helped spark consumer activism in generations of young people and helped push the UK government to ban animal testing of cosmetics ingredients in 1998. It says its "community trade" has benefited more than 12,000 workers in 23 countries.

**To Do:** Body Shop's 2018 sustainability report admits that only 10% of its ingredients can be deemed "sustainable," though it pledged to reach 100% by 2020. Post COVID-19, we'd like to see it return to its roots by rolling out product-refill stations in all its 3,000 stores (it's now at trial phase).

**F1.** Patagonia founder Yvon Chouinard, pictured in the 1972 Chouinard Equipment catalogue. Photo: Tom Frost.

**F2.** Ozone hole over Antarctica, pictured in 2004. NASA image courtesy of the Scientific Visualization Studio.

**F3.** Anita Roddick pictured refilling Body Shop bottles in 1978. The Argus archives.



F3.

**"I have been part of a different, smaller business movement, one that tried to put idealism back on the agenda."**

— Anita Roddick, Body Shop co-founder



## Cascades Tissue Group

### 1977 Pioneered turning recycled waste into tissue products

The Lemaire family founded the Drummond Pulp & Fibre company in 1957 with the goal of reusing recovered household and industrial waste. In the 1960s they started making paper out of recycled materials and by the 1970s launched the tissue group, scaling up its pulp recycling.

**Catalyst:** Recognizing that old paper could be used to create new products.

**Impact:** Cascades was making recycled paper and tissue products more than a decade before the Forest Stewardship Council came along. It now saves 45 million trees every year by using recycled paper rather than virgin wood pulp and is the largest collector of paper fibres in Canada

**To Do:** Cascades uses 83% recycled materials in the manufacturing of all its products. We'd love to see that number climb to 100.

## Ballard Power Systems

### 1983 Trailblazing developer of hydrogen fuel-cell technology

The Canadian company started out developing rechargeable batteries, then, in search of clean energy solutions, switched gears to fuel-cell technology in 1983. A decade later it unveiled a small zero-emissions bus that was powered completely by hydrogen and soon partnered with Ford and Daimler. Co-founder Geoffrey Ballard, a former oil industry engineer, has been called the "father of the fuel cell industry."

**Catalyst:** Geoffrey Ballard was working in the oil industry in the 1970s when the oil crisis hit. He became driven to develop environmentally clean energy systems.

**Impact:** Ballard is credited with kickstarting and expediting the hydrogen movement. The company now says it has 70 to 80% market share of all the fuel-cell buses

and trucks deployed globally (including in Germany, California and China).

**To Do:** Scale production and bring down costs.

#### F4.



## HP

### 1987 Early leader in e-waste recycling and take-back programs

HP began recycling computer hardware in 1987 and officially launched the HP Planet Partners return-and-recycling program for HP LaserJet print cartridges in 1991.

**Catalyst:** The dumping of hazardous waste overseas became a hot-button topic in 1986 and led to the signing of the 1989 Basel Convention that propelled legitimate electronic recycling. HP got a head start.

**Impact:** Through 2018, HP has used recycled plastic to manufacture 4.2 billion ink and toner cartridges, and more than 80% of its ink cartridges now contain between 45 and 70% post-consumer recycled content.

**To Do:** Last year, HP announced that it plans to increase its recycled plastic content to 30% by 2025. We'd like to see it up its goal to 100% post-consumer or post-industrial recycled content.

## IKEA

### 1990 Early adapter of Natural Step framework

The Swedish furniture giant was one of the first companies to adopt The Natural Step (TNS) framework as the basic structure for the implementation of its environmental policy and plan.

**Catalyst:** IKEA approached TNS after it was outed for the high levels of

formaldehyde in its particle board furniture in the 1980s and again in the '90s, at which point sales in Denmark plummeted by 20%. The world's third largest consumer of wood was also threatened with boycotts over its use of tropical rainforest wood.

#### F5.



**F4.**  
Hewlett-Packard's HP-87 computer was one of the first computers that could be sent back for recycling.

**F5.**  
IKEA's catalogue is now printed entirely on FSC-certified paper.

**F6.**  
Herman Miller's iconic Mirra chair was its first Cradle-to-Cradle certified product.

**Impact:** IKEA has since set strict formaldehyde standards and largely banned PVC and heavy metals such as lead from all products. It became a founding member of the Forest Stewardship Council (FSC) in 1993. It now claims that 97% of its wood is FSC-certified or recycled and, with WWF, has helped certify 35 million hectares of forest.

**To Do:** IKEA's furniture is notorious for its lack of durability, something it promises to improve upon as it aims to become fully circular by 2030. Scaling up its furniture rental pilots will help it recycle and reuse materials at end of life.

#### F6.



## Herman Miller and MBDC

### 1990s Creation of system for designing cradle-to-cradle products

In the late 1990s, office furniture manufacturer Herman Miller began collaborating

with architect William McDonough and chemist Michael Braungart's McDonough Braungart Design Chemistry (MBDC) to create a system for designing closed-loop "cradle-to-cradle" products.

**Catalyst:** In 1991, the Environmental Health and Safety group at Herman Miller was drafting its first "Design for the Environment" (DfE) guidelines. Noticing gaps in their knowledge, they later partnered with MBDC (founded in 1995) to develop the cradle-to-cradle (C2C) protocol for material selection.

**Impact:** The collaboration led to the creation of the DfE product-assessment tool, which evaluates progress toward cradle-to-cradle products, going beyond limitations of life-cycle assessment tools, laying the foundations for today's circular economy advancements. There have now been more than 600 C2C certifications in 30 countries.

**To Do:** To date, 76% of Herman Miller products are DfE-approved, but recycled content levels could be improved.

F7.



## Sony

**1991 Released the world's first commercial rechargeable lithium-ion battery**

The oil embargo of the 1970s prompted an Exxon scientist to develop the earliest rechargeable lithium-ion battery as a fossil-fuel-free way of storing energy. Exxon shelved that research, but it was later picked up by Sony, which in 1991 released the first commercial lithium-ion battery, enabling a revolutionary shift in portable power storage.

**Catalyst:** Market opportunities fuelled by two decades of Nobel Prize-winning scientific breakthroughs in lithium-ion batteries.

F7.

Sony's first commercial lithium-ion battery helped spawn the mobile revolution.

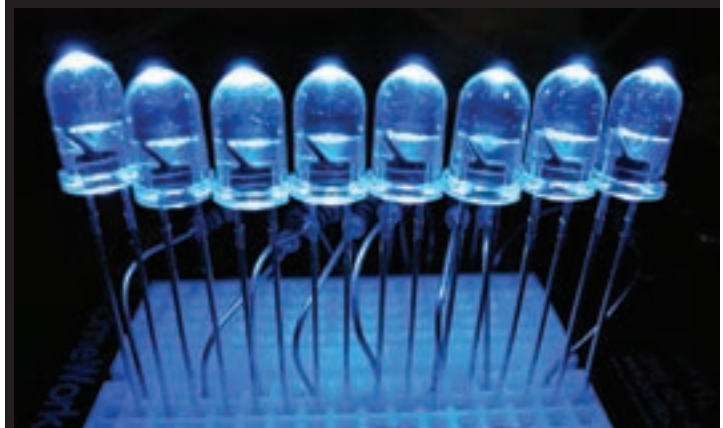
F8.

Nichia's blue LEDs enabled the invention of the groundbreaking white LED.

F9.

BYD is supplying Toronto with e-buses made at its assembly plant in nearby Newmarket.

F8.



**Impact:** This powerful, lightweight, rechargeable battery has been crucial to the mobile technology and electric vehicle revolution. It can also store significant amounts of energy from solar and wind power, making a fossil-fuel-free society possible.

**To Do:** Considerable work remains to effectively recycle batteries around the world and ensure battery minerals are sourced ethically.

## Nichia Corporation

**1993 Started production of the first high-brightness blue LED light, leading to the development of the first white LED**

An employee at Nichia Corporation, Shuji Nakamura, first solved the challenge of creating blue LEDs, which enabled his later invention of the groundbreaking white LED. The invention effectively made Edison's energy-hogging incandescent light bulb obsolete.

**Catalyst:** Commercial interests and scientific innovation built upon decades of research, including the work of two Japanese professors who shared the 2014 Nobel Prize in physics with Nakamura.

**Impact:** LED bulbs typically use up to 80% less energy than traditional incandescent bulbs and can last several years longer. Given that approximately a

quarter of the world's electricity is used to generate light, the economic and environmental impacts of widespread LED use are monumental.

**To Do:** Nichia originally awarded Nakamura only US\$200 for his invention. However, a US\$8.1 million settlement was reached in 2005, prompting calls for greater profit sharing between on-staff inventors and Japanese corporations.

## Interface

**1994 Launch of the Mission Zero program**

Ray Anderson, founder and CEO of modular carpet company Interface, launched the Mission Zero program in 1994, challenging the company to eliminate any negative impact it had on the environment by 2020 – a radical path for a mainstream industrial business in the mid-1990s.

**Catalyst:** Anderson read Paul Hawken's *Ecology of Commerce* in 1994; he said the book hit him "like a spear in the heart," opening his eyes to the impacts of business on the environment.

**Impact:** In 2019, eight years after Anderson's death, Interface declared Mission Zero accomplished, with dramatically reduced GHG emissions, water usage and waste in the company's operations. Interface blazed a trail for other companies, in its industry and beyond,

to invest in sustainability, proving that it also benefits the bottom line.

**To Do:** Interface's next "moonshot" involves making an entirely carbon-negative product – a first step in its new Climate Take Back mission.

F9.



## BYD

**1995** Founded its first rechargeable-battery factory, setting it on path to become world's largest electric carmaker

China's BYD started out by manufacturing rechargeable batteries for electronics and has since become the world's largest maker of electric vehicles (both consumer and commercial) for the past three years. Its batteries are also enabling bulk storage of renewable energy.

**Catalyst:** BYD's founder reportedly started BYD with the goal of edging in on the Japanese-dominated battery market with cheaper made-in-China options.

**Impact:** BYD's rechargeable batteries have helped the car industry shift away from gas-powered vehicles. It's also paving the way to increase global adoption of renewable energy by enabling the storage of solar and wind energy in its batteries.

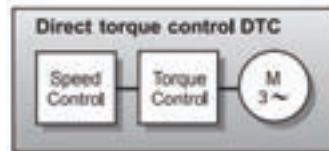
**To Do:** BYD's new fully automated production lines are a shift away from its original factories, operated by migrant workers, where labour rights were a concern. As with all battery producers, ensuring its minerals are sourced ethically should be a top priority.

## ABB

**1995** Started production of direct torque control drives, catalyzing energy efficiency in industrial operations

It wasn't a glitzy moment in history. ABB had been making variable-speed drives for motors and pumps in the metal, marine and mining industry since the 1970s. Then it developed its first AC industrial drive with direct torque control. It sparked dramatic reductions in power use across a wide array of industries, often chopping energy use in half.

F10.



**Catalyst:** Growing calls for energy savings drove market innovations.

**Impact:** According to the company, its low-voltage drives saved an estimated 170 terawatt hours of electric power (roughly equal to the needs of 42 million European homes) and reduced global CO2 emissions by 140 million tons in 2008 alone. Today, more than half of ABB's worldwide revenues are generated by technologies that combat the causes of climate change.

**To Do:** In 2014, ABB set a goal of having its "eco-efficiency" products account for 60% of total revenue by 2020; in 2019, they were at 57%.

F11.



## Toyota

**1997** Debuted the world's first mass-produced hybrid electric vehicle

Toyota brought the first mass-market hybrid to the market in Japan in 1997, with demand exploding when the car reached the U.S. a few years later.

**Catalyst:** Toyota wanted to develop a "global car for the 21st century" to compete against a Clinton-Gore administration push for more fuel-efficient American cars.

**Impact:** In 2012, the Prius became the bestselling car in California and in 2018 was the bestselling hybrid vehicle in the U.S. Worldwide sales of Toyota hybrids have surpassed 14 million units, and Toyota now sells more than 30 different hybrid models in more than 90 countries and regions across the globe.

**To Do:** Toyota has focused on hybrids and researching hydrogen cars rather than going all-in on EVs. Considering the speed at which the global transportation fleet is set to become electrified, Toyota has some catching up to do.

## Unilever

**1997** Launch of the Marine Stewardship Council (MSC) with WWF

Unilever and WWF founded the MSC with the goal of curbing overfishing. At the time, Unilever was the leading seafood processor in the world. After international consultations with scientists, academics, activists and industry organizations, the first fisheries were certified in 2000.

**Catalyst:** Collapse of Grand Banks cod fishery in Canada in the 1990s.

**Impact:** MSC has compelled both industry and government regulators to become more "proactive over the last decade in addressing sustainability concerns," says SeaChoice.org. Today,

F10.  
ABB's direct torque control innovation can chop energy use in half.

F11.  
The Toyota Prius became America's top-selling hybrid.

F12.  
Globally, 15% of wild-caught fish are Marine Stewardship Council certified.







F13.

15% of the world's wild-caught fish are MSC certified. Unilever's early involvement encouraged other food companies to sign up for certification.

**To Do:** MSC wants to see more than a third of global marine catch certified or "engaged" in the process of certification by 2030. Before it scales up, it needs to address critiques by several NGOs, including SeaChoice.org and Greenpeace, which say too many questionable fisheries are allowed to carry the MSC seal.

## Impax

**1998 Pioneered investing in environmental solutions and helped bring the idea to scale**

Impax was the first significant investment firm dedicated entirely to fuelling the transition to a more sustainable global economy, disrupting the financial status quo at the time of its founding. It pioneered several responsible investing tools and indexes, including the FTSE Environmental Markets classification system, defining and measuring the performance of global environmental markets.

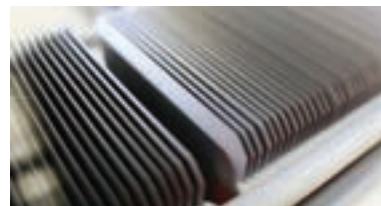
**Catalyst:** An International Finance Corporation mandate created a market opportunity for mission-driven CEO Ian Simm.

**Impact:** Impax's work blazed the trail for today's explosion in responsible investing, proving that you can invest in

environmental solutions while reaping economic benefits. Today, it has £15.1 billion in assets and is one of the 145 investor companies that have signed the We Are Still In declaration for climate action.

**To Do:** Scale up distribution and integrate its impact reporting into standard investor materials.

F14.



## LONGi Solar

**2000 Driver of the solar industry shift to efficient mono wafers**

Founded in 2000, LONGi is the world's first and largest manufacturer of groundbreaking monocrystalline silicon wafers, which was a key factor in optimizing the power-cost ratio of the solar photovoltaic (PV) industry.

**Catalyst:** Surging demand for solar in Germany in the 1990s fuelled China's early investments in solar panel development, enabling the creation of companies like LONGi.

**F13.**  
Mining e-waste turned Umicore into a leading metal recycler.  
Photo: Martin Mach Ondřej.

**F14.**  
LONGi's monocrystalline silicon wafer innovations were critical in bringing down the costs of solar panels.

**Impact:** In early 2018, LONGi broke the global record for monocrystalline PERC cell efficiency for the third time in five months, reaching 23.6% efficiency. It has been a significant driver of efficiency and economic improvements in PV manufacturing, bringing the price of solar power down across the globe.

**To Do:** Eliminate lead from the manufacturing process.

## Umicore

**2000s Transformation from destructive miner to world's largest recycler of precious metals**

Umicore had its origins as a participant in Belgian King Leopold's exploitation of the Congo in the first half of the 20th century. Today, the former mining company largely "mines aboveground," processing e-waste, spent batteries and smelter residues.

**Catalyst:** Umicore transformed its business model to move away from the increasingly volatile smelting business.

**Impact:** In 2019, Umicore derived approximately 65% of its revenues from recycling metals. For example, Umicore's furnace in Hoboken recycles up to 250 million mobile phone batteries, two million e-bike batteries and 35,000 EV batteries a year. Recently, Umicore partnered with Audi to improve its EV battery recycling rate to 90%.

**To Do:** Decrease the use of virgin minerals while increasing the vigilance of its ethical sourcing, especially given that the cobalt processor was named in a recent U.S. lawsuit against Apple, Dell, Microsoft and Tesla over the deaths of children in Congolese cobalt mines.

## Tembec

**2001 First and largest Canadian forest-products company to commit to FSC certification**

After facing years of protests, Tembec (now Rayonier Advanced Materials) signed a historic accord with WWF, making a company-wide commitment

to seek FSC certification on all of its 32 million acres of forest under management.

F15.



**Catalyst:** WWF, Wildlands League.

**Impact:** Tembec's leadership broke a decades-long standoff between environmentalists and loggers, paving the way for other industry players to adopt FSC standards. Now Canada is home to five of the world's 10 largest FSC-certified forests, with more than 53.9 million hectares certified.

**To Do:** Focus on cleaning up water discharges into the Altamaha River.

## Legal & General

### 2002 First backer of CDP (formerly the Carbon Disclosure Project)

In 2002, this multinational financial services company was the first investor to back CDP's push to get companies to disclose their greenhouse gas emissions.

**Catalyst:** The business risks of global warming and growing interest in "responsible investing."

**Impact:** More than 525 investors globally, with assets of US\$96 trillion, have now signed CDP's disclosure request, and more than 8,400 companies report on climate change, water security and deforestation.

**To Do:** Review why its climate-conscious Legal & General Future World Climate Change Equity Factors Index Fund has more oil and gas investments than its comparator benchmark (FTSE All World Index).

## Bioregional

### 2002 Developed One Planet Living framework for global eco-communities

The UK social enterprise Bioregional, along with WWF, created the One Planet Living framework based on the founders' experience developing BedZED, the UK's first large-scale eco-village. Bioregional provides tools and training and works with developers to create sustainable homes and communities around the globe.

**Catalyst:** Founders recognized that "our over-consumption of resources is the major driving force for environmental degradation."

**Impact:** Bioregional has helped more than 50 organizations create their own One Planet Action Plans and has collaborated with developers to create 11,000 One Planet homes. Four cities on three continents are now officially engaging with One Planet Living principles.

**To Do:** Abu Dhabi's mega eco-community Masdar City, still under development, was considered a One Planet Living flagship project, but labour rights concerns have stopped it from getting the One Planet label.

F16.



## Tesla

### 2003 Founded with goal of bringing high-performance, zero-emission EVs to the masses

Tesla was started by a group of engineers who wanted to prove that "electric vehicles can be better, quicker and more fun to drive than gasoline cars." In 2004, they

teamed up with PayPal co-founder Elon Musk, who had a shared interest in commercializing a prototype electric sports car called the "tzero" at a time when only hybrid cars were on the market.

**Catalyst:** After GM forcibly recalled all its electric cars in 2003 and destroyed them, Musk said that "the only chance was to create an EV company, even though it was almost certain to fail."

**Impact:** Tesla showed it was possible to make an EV that accelerates as fast as a Ferrari, which influenced legacy and luxury automakers to embrace the commercialization of EVs. In 2007, GM's vice-chair credited Tesla with inspiring GM's re-entry into the EV market.

**To Do:** Tesla is under pressure to reduce its projected water usage at its new Gigafactory in Germany - that and deliver a fully ethical battery.

## Walmart

### 2005 World's largest company commits to shrinking its footprint

In 2005, Walmart announced that it was going green, launching zero-waste, 100%-renewable-energy and sustainable-product targets.

**Catalyst:** Public backlash over predatory pricing, labour abuses and environmental impacts were digging into sales. That and Hurricane Katrina are said to have inspired Walmart CEO Lee Scott to launch a "sweeping sustainability strategy" that also enlisted its 60,000 suppliers.

**Impact:** One 2014 study found that Walmart was the top-cited retailer driving supplier investments in sustainability. In 2006, Walmart also began to develop "sustainable value networks" in 14 sectors, from seafood to fashion (including co-founding the Sustainable Apparel Coalition with Patagonia), to have a broader industry-wide impact.

**To Do:** Meeting its science-based climate target (which includes slashing

F15.  
Canada's largest  
industrial forest  
became FSC  
certified under  
Tembec.

F16.  
The first Tesla  
Roadster was  
produced in 2008.



F17.

a gigatonne of greenhouse gases from its global value chain by 2030) will be a challenge. Whether it gets to zero waste and 100% renewable energy remains to be seen.

F18.



## BlaBlaCar

**2006** Established world's leading long-distance ride-sharing start-up

It all started when Frédéric Mazzella couldn't catch a train back to Paris for Christmas in 2004. He noticed that France's roads were filled with drivers alone in their cars, and the idea for an online platform for carpooling was born. By 2019, BlaBlaCar had a valuation of more than US\$1 billion.

**Catalyst:** Founder's vision of a people-powered travel network enabled by technology.

**Impact:** BlaBla has grown from five million users in 2013 to 87 million in 22 countries, mostly in Europe but also including Brazil, India and Mexico. 1.6 million tonnes of CO2 were saved by BlaBlaCar carpoolers in 2018 - "as if Paris was free of traffic for a year."

**F17.**  
Walmart launched a dedicated organic produce section in 2019.

**F18.**  
BlaBlaCar has 87 million members in 22 countries.

**F19.**  
Seventh Generation was one of the first companies to become a certified B Corporation.

BlaBla has also branched out into bus service in Europe.

**To Do:** COVID-19 poses existential challenges to carpooling services. Rebuilding once the pandemic is over will be an upward climb.

## Seventh Generation

**2007** Becomes a founding certified B Corporation

This maker of green cleaning products, founded in Vermont in the late 1980s, was one of the earliest purpose-driven companies. It became a founding B Corporation member in 2007 - certifying its entire social and environmental performance - to "help set the standard for corporate responsibility."

**Catalyst:** The company's decision to become a B Corp was motivated by a drive for transparency and desire to distinguish it from competitors in the growing green-cleaning market.

F19.



**Impact:** Besides selling US\$250 million of largely eco-friendly cleaning and personal-care products annually, the company is working to get all its suppliers certified as B Corp by 2020. Now owned by Unilever, Seventh Generation paved the way for other large companies to seek certification (including Patagonia, Ben & Jerry's and Danone).

**To Do:** It's working on making all its plastic bottles from 100% recycled content and decoupling GHG emissions from business growth.

F20.



## Intel

**2008** One of the first companies to link employee bonuses to sustainability performance

Since 2008, Intel has linked the annual performance bonuses of its executives and employees to the company's achievement of sustainability goals such as reductions in GHGs and energy use - effectively making its sustainability goals everyone's job.

**Catalyst:** Recognition that achieving sustainability goals is critical to the company's long-term viability.

**Impact:** By 2012, the company's GHGs had dropped 35% on an absolute basis. The company inspired others to follow suit in tying environmental indicators to executive pay; in 2012, 15% of companies had sustainability pay-links, which grew to 24% in 2014, according to Ceres.

**To Do:** Provide more detail on how bonuses, and what portion, are tied to meeting sustainability goals.

## Ørsted

**2009-2019** Transformed its energy generation from 85% fossil fuels to 75% renewables in a decade

In 2009, the former Danish Oil and Natural Gas emitted one third of Denmark's CO2 emissions, but a radical decision to shift investments away from fossil fuels to renewables cut its emissions by 83% (compared to 2006).

**Catalyst:** Climate crisis-fuelled backlash against coal in Europe convinced leadership to make big investments in



wind, which it doubled down on in 2012 when a debt crisis forced it to sell off its loss-making gas businesses.

**Impact:** Ørsted's decision has proved it is possible for large fossil fuel companies to transform themselves in a remarkably short time while also succeeding economically.

**To Do:** By 2025, Ørsted aims to be carbon neutral in its energy generation and company operations, and by 2040 it aims to do the same for its supply chain and trading activities (phasing out natural gas).

## Kimberly-Clark

### 2009 Agrees to stop clear-cutting old-growth boreal forest

After years of Greenpeace campaigning, the world's largest manufacturer of tissue paper products set a goal of getting 100% of its wood pulp from environmentally responsible sources.

**Catalyst:** Greenpeace, WWF.

**Impact:** Before 2009, Kimberly-Clark got 90% of its wood fibre from what Greenpeace called "unsustainably managed" forests, most notably the boreal forest in Canada, predominantly via clear-cutting. Since 2009, it has increased its use of environmentally preferred fibres, including FSC-certified fibre, in its global tissue products to 87%.

**To Do:** The recycled content in K-C's tissue products is stuck at the same 30% level it was at globally nine years ago. It could learn from Cascades Tissue Group, whose recycled content is 84%.

## IBM

### 2010 First electronics maker to phase out two "forever chemicals" from its chip manufacturing business

IBM was the first in its industry to fully remove the "forever chemicals" perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) from the company's chip manufacturing business in 2010, making IBM's e-waste less toxic.

**Catalyst:** Pressure from EU and U.S. regulators to phase the two chems out; campaigning by the Environmental Working Group, Greenpeace and others.

**Impact:** The ban reduced consumer and worker exposure to the persistent toxins. IBM made new formulations available to other companies through technology development alliances.

**To Do:** In 2018, IBM generated 1,760 tonnes of hazardous waste. Of this, 51% was recycled; 30% was incinerated and 12% ended up in a landfill.

## Sainsbury

### 2010 Becomes world's largest retailer of fair trade products

The British grocer was the UK's first retailer of fair trade products, starting in 1994, and has been the world's largest Fairtrade-certified retailer since 2010.

**Catalyst:** Fairtrade Foundation, set up by church groups and NGOs in 1992; consumer demand.

**Impact:** In 2017 and '18, the grocer's sales of fairly traded products reached more than £380 million, and it sold more than 500 Fairtrade-certified products sourced from around the world, including nothing but 100% Fairtrade bananas (650 million a year) for more than a decade.

**To Do:** Sainsbury's decision to drop Fairtrade certification from its private tea brand in 2017 drew criticism for signalling the demise of the Fairtrade label.

## Kering

### 2011 Publishes first Environmental Profit & Loss (EP&L) Account of its Puma division

Kering's former subsidiary, Puma, pioneered EP&L accounting in 2011, assigning a monetary value to nature's "services" used by the business – fresh water, clean air, healthy biodiversity – as well as to the company's negative impacts.



F21.

**F20.**  
Intel may be best known for its core processors, but it also kicked off a wave of sustainability-linked bonuses.

**F21.**  
Ørsted's former Svanemølle Power Station once burned coal and is now becoming a Danish science museum.

**Catalyst:** Former Puma CEO Jochen Zeitz was inspired by the Economics of Ecosystems and Biodiversity (TEEB) study on the economic benefits of biodiversity. Zeitz wanted to "make the point that the current economic model . . . must be radically changed."

**Impact:** In 2015, Puma's parent company, Kering, extended its EP&L scope to all the group's brands, becoming the first international group to do so and disclose the results. By sharing its methodology in an open source mode, the group encouraged Novo Nordisk, Philips and others to attempt natural capital accounting.

**To Do:** EP&L and natural capital accounting are yet to be scaled to global, standard accounting procedures.

F22.



## Plastic Bank

### 2013 Turns plastic waste into currency

In 2013, Plastic Bank co-founder David Katz had an epiphany: if waste plastic could be turned into a currency we could tackle global poverty and ocean

pollution at the same time. The social enterprise launched the concept of Social Plastic in Haiti in 2015, paying collectors of waste straws, lids and bottles a living wage. The recycled plastic is then sold to 75 brand partners, including Lush and Henkel. In 2019, SC Johnson and Plastic Bank opened eight branches in Indonesia, paying local waste collectors in digital tokens they can use to buy needed goods and services.

**Catalyst:** Ocean plastic pollution, global poverty.

**Impact:** Since its founding, Plastic Bank has recovered and recycled more than 6,000 tonnes of ocean-bound plastic and improved the lives of more than 4,300 families living in poverty in Haiti, the Philippines, Indonesia and now Egypt.

**To Do:** Scale up rapidly to meet the wave of corporate recycled-content commitments through 2025.

## Rockefeller Brothers Fund

### 2014 Announces that it's divesting from fossil fuel investments

The heirs to the Standard Oil fortune at the helm of the US\$860 million Rockefeller Brothers Fund shook the investment community when they announced they would be joining the divestment movement by ditching oil and coal holdings.

**Catalyst:** 350.org, Divest Invest, As You Sow, Wallace Global Fund, Green Faith, etc.

**Impact:** The fund's announcement helped kick off the divestment movement, which has now been embraced by major financial players, representing assets in excess of US\$11 trillion at the end of 2019. By June 2019, the fund's exposure to coal and tar sands has been choked to less than 0.05% of its total portfolio (vs. 1.6% in 2014), with total fossil fuel exposure around 1% (vs. 6.6% in 2014).

**To Do:** The fund has set a target of allocating 20% of its portfolio to impact investments.

**F22.**  
Plastic Bank has kept more than 500,000,000,000 plastic straws out of the ocean.

**F23.**  
Philips LED bulbs can now be rented as part of the company's Light as a Service model.

**F23.**



## Philips

### 2014 Pioneered circularity as a service

Philips didn't invent the light bulb, but it did reinvent how we buy them. Its Light as a Service model installs, maintains and manages a building's lighting, making it much easier for Philips to reclaim valuable materials at their end of life and put circular economy principles into action.

**Catalyst:** Philips's CEO has said, "It's important to disrupt your business before someone else does." Philips was a founding member of the Ellen MacArthur Foundation in 2013.

**Impact:** Philips has operated recycling programs for more than 25 years, but turning lighting into a service helped the company design for multiple reuse and recycling. Installing the most energy-efficient lighting systems has helped businesses reduce energy use by up to 70%.

**To Do:** Philips hopes to decouple its business from resource extraction, but it has a ways to go. Its 2020 targets include generating 15% of sales from circular products and services.

## Ontario Power Generation

(OPG)

### 2014 Closure of Ontario's last coal-fired power plants and launch of solar plant

The closure of Ontario's coal-fired power plants remains the world's single largest realized GHG-reduction measure to date. While it was a government

decision to shut down coal power in Ontario, OPG was selected as one of the Top 50 for making good on the task with an innovative approach, including partnering with Six Nations of the Grand River Development Corporation and the Mississaugas of the Credit First Nation to build a 44-megawatt solar facility at the former home of North America's largest coal-fired power plant.

**Catalyst:** The deadly impacts of smog and air pollution on the health of children and adults were highlighted by several groups, including the Ontario Medical Association, the Canadian Association of Physicians for the Environment and the Ontario Clean Air Alliance.

**Impact:** The closure was one of the main reasons Ontario achieved its 2014 emissions-reduction target, and it improved air quality noticeably. The move contributed to the development of the province's renewable energy sector, demonstrating that large energy-generation shifts are possible in populous, coal-dependent areas.

**To Do:** Decarbonize the remainder of its fossil fuel assets (natural gas) and invest in storage and charging infrastructure to enable the scaling up of renewables.

## Norges Bank Investment Management

(NBIM)

### 2015 World's second-largest asset owner exits coal investments

In 2015, Norway's parliament issued a unanimous recommendation to divest the country's sovereign wealth fund from the coal industry. This excluded companies that derived more than 30% of their revenues or their power production from coal, the biggest energy-related climate change culprit.

**Catalyst:** Greenpeace, WWF, Future in Our Hands, Urgewald, 350.org, economic interests and public pressure.

**Impact:** Norway took the lead among sovereign wealth funds to start divesting from the worst fossil fuel, withdrawing billions of



F24.

euros from the coal industry and depriving fossil fuel companies of financing (thus increasing the cost of capital).

**To Do:** NBIM was recently told by Norway's finance ministry to divest from oil exploration and production companies. However, as of early 2020, the fund still owned 307 oil and gas companies valued at US\$23 billion (including a \$1.7 billion stake in Exxon).

F25.



## Adidas

### 2015 First major shoe company to scale use of ocean plastic

After a groundbreaking 2015 study chronicled the enormity of the ocean plastic crisis, adidas partnered with environmental organization Parley for the Oceans to transform the waste into sneakers made with at least 75% recycled ocean plastic. It started with 7,000 pairs of shoes, scaling up to 11 million pairs in 2019. In 2020, adidas aims to produce 15 to 20 million pairs of the revolutionary shoes, as well as boost the recycled content of the polyester in its clothing to 50%.

**Catalyst:** Ocean plastic crisis, Parley for the Oceans, Greenpeace, Ellen MacArthur Foundation.

**Impact:** Adidas and Parley for the Oceans have stopped more than 2,810 tonnes of plastic waste from entering the ocean by using plastic collected from coastal area cleanups. A number of other large companies have followed suit.

**To Do:** Adidas now manufactures 400 million pairs of shoes annually; 28% of the polyester in its shoes comes from recycled sources. Adidas is racing to use 100% recycled polyester by 2024.

## European Bank for Reconstruction and Development

(EBRD)

### 2015 Launched the Green Economy Transition approach

In the run-up to the COP21 meeting in Paris, the EBRD launched its Green Economy Transition (GET) strategy. Its target: that 40% of EBRD's total investments be in "green climate finance" by 2020, boosting financing in projects that further the transition to a low-carbon economy.

**Catalyst:** Climate crisis, market opportunities for low-carbon leaders.

**Impact:** To date, the EBRD has financed 1,900 green projects and signed US\$34

billion in green investments, putting it on track to reach its 2020 goal. The landmark initiative – and its success – should encourage other multinational development banks and financial institutions to shift their investments toward the low-carbon economy.

**To Do:** The bank stopped funding thermal coal and oil exploration but is still financing emissions-heavy natural gas.

## Axa

### 2015 First major insurance company to begin withdrawing from coal

The French multinational insurance company first announced that it would divest €500 million in coal assets by the end of 2015, then in 2017 said it would stop insuring any new coal construction projects, as well as oil sands and pipeline businesses.

**Catalyst:** Unfriend Coal coalition of a dozen NGOs, as well as the broader divestment movement.

**Impact:** Six months after Axa made its announcement in 2015, two other European insurers announced new coal policies. Now, more than 35 insurers with combined assets of US\$8.9 trillion (roughly 37% of the insurance industry's global assets) have adopted some form of coal divestment policies. "Insurers' retreat from underwriting coal business has left coal-fired generators with a significant reduction in available capacity," noted risk management firm Willis Towers Watson.

**To Do:** Axa has stopped insuring most coal projects, but it will continue to insure coal companies until 2030 in Europe and OECD countries, and by 2040 in the rest of the world.

## Beyond Meat

### 2016 Launches plant-based burger that "bleeds"

Beyond Meat pioneered plant-based meat alternatives that replicate the look and taste of "real meat," leading to a string of fast food and restaurant collaborations.

F24.

The 44-MW Nanticoke Solar farm in Ontario is a partnership between Ontario Power Generation and two First Nations.

F25.

The adidas prototype shoe is produced using plastic salvaged from the ocean.



**Catalyst:** Vegan founder Ethan Brown wanted to develop a “Prius for the plate” that could convince fast food lovers to eat less carbon-intensive beef.

**Impact:** A University of Michigan study found that Beyond Burgers involve 90% fewer GHGs, 99% less water and 46% less energy than beef burgers. By shifting attitudes toward “veggie burgers,” Beyond Meat has fuelled a rise in “flexitarians” – and a stampede of restaurant partnerships racing to put plant protein on the menu (A&W, McDonald’s, Subway, etc.). Beyond Meat’s success has also prompted other large brands, such as Nestlé and Maple Leaf Foods, to invest in plant-based protein.

**To Do:** Address health concerns over the high levels of sodium in its products.

F26.



F26.  
More than 500 million users have joined the Alipay Ant Forest initiative.

## Alipay

### 2016 Launch of the Alipay Ant Forest project (122 million trees and counting)

The Chinese e-commerce and mobile payment platform launched a tree-planting and conservation project on its mobile app, which earned it a 2019 UN Champions of the Earth award. The app rewards its users with “green energy points” that grow into virtual trees when users take steps to reduce their individual carbon footprints, such as biking to work or buying sustainable products. Alipay matches these virtual trees by planting and maintaining real trees and protecting a conservation area with the help of NGOs.

**Catalyst:** China’s worsening smog and climate crisis.

**Impact:** Since its launch in 2016, more than 500 million people have used the Ant Forest app and 122 million trees have been planted in northwest China. The company has also funnelled

US\$8.4 million into financial incentives for farmers to plant trees and develop organic agricultural products. Ant Forest has inspired similar initiatives in the Philippines.

**To Do:** Maintaining planted trees will be key. Alipay could extend the platform to other countries and regions.

## SSAB, LKAB & Vattenfall

### 2016 Created HYBRIT initiative for fossil-free steelmaking technology

Together, the three Swedish companies – an industrial steel conglomerate, an iron ore miner and an electricity producer – created this initiative to develop fossil-free steelmaking technology with virtually no carbon footprint by replacing coke and coal with fossil-free electricity and hydrogen. The construction of a pilot plant started in Sweden in 2018.

**Catalyst:** Industry demand, looming regulations, carbon-pricing projections.

**Impact:** Steel amounts to 8.3% of all global CO<sub>2</sub> emissions, so the technology could have a significant impact. If successful, HYBRIT could reduce Sweden’s national carbon emissions by 10% and Finland’s by 7%.

**To Do:** Even though progress has been made, the technology is still under development and a market breakthrough is years away.

## Industrial and Commercial Bank of China

(ICBC)

### 2016 Developed the first comprehensive environmental stress test

ICBC, the largest bank in the world, became the first bank in China to evaluate the impact of environmental policies on credit risks for commercial banks, showing that environmental risks have become one of the most important factors affecting the daily operations of banks.

**Catalyst:** President Xi Jinping’s call for the development of “green finance” in support of China’s goal of building an “ecological civilization”; the risk of climate-related loan defaults, combined with the “green bankers” movement kicked off by Mark Carney and Ma Jun; and the UN-backed Inquiry into the Design of a Sustainable Financial System.

**Impact:** This stress-test tool provides a reference point for banking regulators to consider the impacts of environmental factors on bank risks and better align capital flows with green development.

**To Do:** Ensure that financing of China’s Belt and Road Initiative, the world’s largest infrastructure program, is incorporating rigorous environmental stress testing to avoid locking in high-carbon development. Currently, ICBC is the world’s largest underwriter of coal plant development, much of it along the Belt and Road Initiative.

## Google

### 2017 Purchased enough renewable energy to match 100% of global operations

Google has become the world’s largest corporate buyer of renewable power, reaching its 2012 commitment of purchasing enough renewable energy to match 100% of its operations. It was one of the first corporations to create large-scale, long-term contracts to buy renewable energy directly.

**Catalyst:** Employee activism, Greenpeace.

**Impact:** Google’s renewable energy commitment is driving the construction of renewable energy projects around the world and, according to the company, will generate more than US\$3.5 billion in capital investment by project developers. It’s now one of 30 major companies that are sourcing 100% of their energy from renewable sources and is one of nearly 200 that are 75% of the way to the We Mean Business coalition’s RE100 pledge.

**To Do:** Google has made substantial contributions to more than a dozen organizations that campaign against climate legislation. Employee activism has



also drawn focus to Google's contracts with fossil fuel companies.

## Caisse de dépôt et placement du Québec

**2017 First major institutional investor in North America to set targets for carbon reduction and climate solutions**

In 2017, managers of Quebec's pension fund announced three overarching climate goals: to factor climate change into every investment decision, to increase low-carbon investments by 50% (by \$8 billion) by 2020, and, between 2017 and 2025, to reduce the carbon intensity of the overall portfolio by 25%.

**Catalyst:** Student and environmental campaign groups and management recognition of the upside potential of investing in measures that address climate change.

**Impact:** By the end of 2018, CDPQ had linked portfolio manager bonuses to the targets and added more than \$10 billion in new low-carbon investments while lowering the portfolio's carbon intensity by 10%. CDPQ has demonstrated that scaling ambitious climate commitments across a large portfolio can be an opportunity rather than a sacrifice.

**To Do:** CDPQ has established an enhanced target to increase its low-carbon investments by 80% between 2017 and 2020

F28.



## TerraCycle

**2019 Creation of Loop, the closed-loop refillable packaging service for large packaged-goods brands**

In early 2019, the global recycling firm TerraCycle unveiled a new circular delivery service for consumers called Loop, a platform that replaces single-use packaging with refillable packaging from major food companies.

**Catalyst:** Greenpeace's plastic pollution audits put major packaged-goods companies in the hot seat. TerraCycle's CEO approached those brands about the Loop concept.

**Impact:** Although it's still in the pilot phase, Loop could reduce waste in landfills and result in less plastics use. While independent zero-waste stores are popping up around the world, Loop brings the idea of reusable containers to conventional consumers who would

otherwise buy from large packaged-goods brands. (Loop's partners include Procter & Gamble, Nestlé, PepsiCo, Unilever, Coca-Cola and Danone.)

**To Do:** Loop will need to scale up beyond pilot testing and demonstrate that carbon emissions, such as from trucking, don't outweigh the environmental benefits of its model.

F27.

Google committed US\$2 billion to new solar and wind projects in 2019.

F29.



F28.

TerraCycle's refillable product containers were piloted in New York last summer.

F29.

Maple Leaf Foods' plant-based hotdog is part of the company's increasing commitment to offering meat alternatives.

## Maple Leaf Foods

**2019 First major meat company to bet big on plant protein**

In the last few years, Maple Leaf Foods has plowed 40% of all new investments into plant protein. In 2019, it announced plans to build the largest plant-protein processing facility in North America, doubling Maple Leaf's capacity to produce meat alternatives. The company has acquired two plant-based protein brands, Lightlife in 2017 and Field Roast in 2018.

**Catalyst:** Surging consumer demand for more protein alternatives; backlash from climate-change, food-safety and animal-welfare advocates.

**Impact:** Almost overnight, Maple Leaf became the largest plant protein company in North America, setting the bar for other meat companies to expand into more sustainable plant-based options and feeding the growing flexitarian and vegan market. The company is also investing in environmental projects throughout North America and recently announced that it is the first major food company in the world to be carbon neutral.

**To Do:** Though more than 95% of its sales still came from meat products in the last

quarter of 2019, Maple Leaf is aiming to build a \$3 billion business on plant-based products by 2029. While the company's energy and GHG emissions are lower than they were five years ago, they've been inching back up in the last three years.

## KLM

### 2019 First major airline to invest in sustainable aviation fuel at scale

In 2019, KLM announced a 10-year contract with the aviation biofuel company SkyNRG for KLM to purchase 75,000 tonnes of crude biofuel per year, the largest such commitment by an airline so far. SkyNRG's biofuels are notably palm-oil free and sourced mostly from used cooking oil.

**Catalyst:** Carbon Offsetting and Reduction Scheme (CORSIA), consumer pressure, the "flight-shame" movement in Europe.

**Impact:** SkyNRG is developing Europe's first dedicated plant for the production of the fuel in the Netherlands. The production facility will use primarily regional waste and residue streams as feedstock and will, when operational in 2022, be the first of its kind in the world. SkyNRG says the fuel will deliver a CO2 reduction of approximately 85%.

**To Do:** Despite the environmental benefits of biofuel, it must be scaled up to put a dent in aviation emissions.

## Mahindra Group

### 2019 One of India's largest businesses, joins Science Based Targets initiative

The multinational manufacturing conglomerate, one of India's largest businesses, took a leadership role in India by committing to align its operations with the Paris Agreement. Four of the Mahindra Group's businesses have now been approved by the Science Based Targets initiative.

**Catalyst:** Investor pressure, economic interests.

**Impact:** The Mahindra Group has seen a 76% increase in total renewable



**F30.**  
President Brad Smith, CFO Amy Hood and CEO Satya Nadella preparing to announce Microsoft's plan to be carbon negative by 2030. (Jan. 15, 2020/Photo by Brian Smale)

## Microsoft has pushed the idea of companies being accountable for their entire lifetime of carbon emissions into the corporate realm.

energy consumption in 2018 compared to 2017, as well as improvements in recycling and material reuse. In 2018, Mahindra challenged 500 other companies to commit to science-based targets before that year's Global Climate Action Summit. Nearly 450 answered the call.

**To Do:** The group has committed to carbon neutrality by 2040. However, many of its companies are in the manufacturing and industrial sectors, so the challenge is significant.

## Microsoft


### 2020 Largest company in the world by market cap pledges to reverse lifetime CO2 emissions by 2050

Earlier this year, the tech giant pledged to "undo" its lifetime CO2

emissions over the next 30 years, making it the first large corporation to do so. Microsoft had already gone carbon neutral in 2012 and pledged that its CO2 emissions will become carbon negative by 2030.

**Catalyst:** Employee activism, the climate crisis.

**Impact:** Microsoft's actions have pushed the idea of accounting for lifetime emissions into the corporate realm. If successful, by 2050 the company will remove all the carbon it has emitted (either directly or through electricity production) since its founding in 1975.

**To Do:** Microsoft's massive data centres operate in part on non-renewable energy. However, the company has announced it will be able to power all its data centres and buildings with renewable energy by 2025. 



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# Corporate Knights


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# GREEN RECOVERY

THE CANADA WE WANT: HOW A CLIMATE-FRIENDLY RECOVERY CAN HELP US BOUNCE BACK STRONGER AFTER COVID-19

**By Toby Heaps**

Editor-in-chief of *Corporate Knights*

**T**his time last year, governments around the world – including Canada’s – began declaring emergencies. Nothing to do with a virus, just a planet on fire. Meanwhile, we continued to pour kerosene on the fire, while somebody was off consulting stakeholders to find the telephone number of the fire department.

The coronavirus is a whole different beast. Within 30 days of the first recorded death in Canada, on March 9 (an 83-year-old man at North Vancouver’s Lynn Valley Care Centre), the federal government rolled out direct new spending of \$105 billion to deal with the immediate fallout from shutting down vast parts of the economy in an attempt to contain the virus.

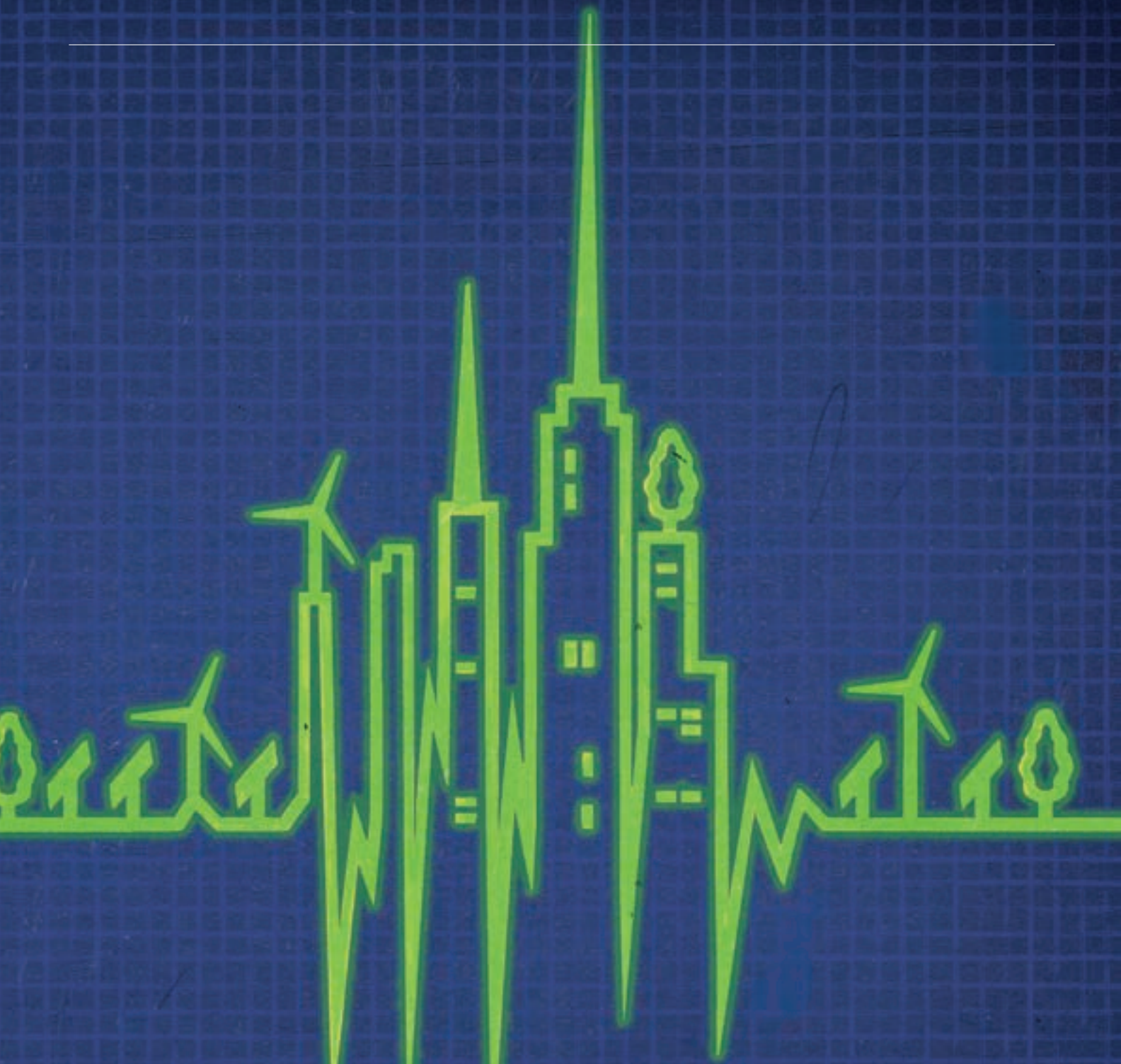
Just the \$71 billion emergency wage subsidy to get Canadians through the next few months was more than the entire \$70 billion

the federal government had earmarked to address the climate emergency over the next 10 years – an amount that many considered bountiful just a few months ago.

The difference is the new coronavirus threatens all of our families today, whereas the climate crisis is more of a distant danger – unless you live in growing wildfire, flood, heat wave, hurricane or drought zones.

The human tendency to procrastinate is strong, but when the bell tolls, our survival instincts kick in.





Historic job losses triggered by the pandemic, combined with collapsing oil prices, will plunge every province in Canada into recession this year, according to RBC forecasts. As the conversation starts to shift from immediate crisis relief to economic recovery, Canada has an opportunity to recover stronger than ever.

While in the past it has been difficult to make bold moves that would allow Canada to surf the clean economy wave rather than be wiped out by it, the Overton window of what

is politically viable has moved. It's important that our policies be grounded in the new reality. The sheer scale of expected stimulus over the next two or three years will likely cast the die of our economy for decades to come.

The last time officials at the federal Finance Department had to come up with a stimulus plan was in the wake of the global financial crisis in 2008/09. Just 8% of the stimulus had a climate dimension, compared to 12% in the U.S., 38% in China and 59% in the European Union, according

to HSBC Global Research.

This time is different: we have a government that was elected with a strong mandate for climate action and a clear 2050 net-zero carbon emissions target. Just don't expect that, on its own, to have much sway on the finance officials who will be crafting the stimulus. They will be preoccupied with a single objective: get the economy growing and people back to work as quickly as possible.

But there is a strong economic argument that a conventional stimulus will not be



good enough. Yesterday's playbook puts us at risk of being left behind at a critical time of transition, as global demand and technology shift in favour of a more efficient low-carbon economy.

Applying a climate lens to the recovery package can identify some of the best opportunities to get people back to work in the short term while building a more resilient Canada for the long term, poised to capitalize on global growth trends.

One 2009 study by the International Monetary Fund on climate policy and recovery found that "environmental measures have been a valuable part of fiscal stimulus packages," emphasizing that "energy efficiency investments are particularly well-suited to stimulus spending," because they can be executed quickly.

In April, leaders in Canada's clean energy sector wrote to the prime minister calling for a clean-energy-focused stimulus in order to "build a better, more resilient economy," noting a special need to invest most in those regions that have been hit hardest by the collapsing oil price, such as Alberta.

Encouragingly, there are signs that clean economy investments could take centre stage in federal economic recovery plans. Said a spokeswoman for Environment Minister Jonathan Wilkinson in April, "When the recovery begins, Canada can build a stronger and more resilient economy by investing in a cleaner and healthier future for everyone."

Inevitably, there will be pushback from some of Canada's more entrenched interests. The response must be clear and unequivocal: a sustainable path is the only way forward if we want Canada to thrive long term.

As Canadians, this is our moment to think and act big. In that spirit, *Corporate Knights* is providing space in our magazine, on our website and in a new weekly live series format to explore how Canada can use a renewed climate-based approach to build a stronger economy.

Our coverage and conversations will revolve around six themes: forests, buildings, power, transport, heavy industry and oil, starting in the following pages with contributions from some of Canada's most inspired minds. We consider the capital requirements and the measures required to enable a fast rollout and spur job creation, energy savings and emissions reductions.

We hope this will embolden Canadian decision-makers to seize the opportunity to build back better. 🌱

# REVIVING CANADA'S ECONOMY WITH ZERO-EMISSIONS FREIGHT

By Carolyn Kim

Ontario regional director with  
the Pembina Institute



**A**s we work to rebuild Canada's economy in the wake of COVID-19, our investment choices will help determine our success in a competitive, 21st-century low-carbon economy. With transportation responsible for a quarter of Canada's greenhouse gas emissions, decarbonizing the sector is key.

A multitude of investments can be made to help kickstart and encourage the greening of Canadian trucking in particular, which represent 83% of our freight emissions, according to the Conference Board of Canada (freight transport as a whole represents 10% of our national emissions).

First, a mandatory federal zero-emission vehicles (ZEV) sales target would help increase investments in production to get more electric cars, trucks and buses on the road. While a number of zero-emission truck models and components are being produced domestically, the transition to electrification in truck production is still in the early stages.

Targeted policy support for low- and

zero-emission heavy-duty vehicles can future-proof Canada's auto industry for electrification while growing the job market — including supply-side policies like research and development funding, loan guarantees and tax breaks for manufacturing plants.

Canada has pioneered the development of hydrogen fuel cell technologies, and hydrogen fuel cell trucks could play an important role. There is ample opportunity for continued government support in developing and producing hydrogen fuel cell technology — especially for heavy-duty vehicles.

To ensure that supply chain growth is paired with investment in infrastructure, the government should identify major corridors along which to invest in publicly funded zero-emission heavy-duty refuelling/recharging stations targeted at long haul operations, and create a five-year investment plan.

Finally, to encourage vehicle switching in the trucking sector, the government should allocate funding and loan programs for low- and zero-emission heavy-duty vehicles to help shift gears for a greener future. 🌱



# IT'S TIME CANADA CAUGHT THE ELECTRIC BUS

By Merran Smith and Sarah Petreva

Merran Smith is the executive director and Sarah Petreva is the policy director at Clean Energy Canada

First, the good news. Globally, electric buses displaced an estimated 270,000 barrels of diesel per day last year, according to a Bloomberg New Energy Finance study. That's a real – and growing – dent in transportation pollution.

But even though Canada is home to four prominent electric bus manufacturers, its transit and school fleets have been slow to adopt this climate-change-fighting technology. It's a missed opportunity both to cut carbon pollution and support our electric bus companies (like Quebec's Lion Electric and Vancouver's GreenPower) by creating a stronger market for them at home.

Canada has relatively few electric buses on its roads, especially compared to the 16,359 fully electric buses in Shenzhen, China. There are signs of leadership at home, however. Transit authorities in Montreal and BC have committed to providing 100% zero-emission transit by 2040. For now, many Canadian-made electric buses are sold to California, leading companies to open manufacturing facilities outside Canada.

Electric buses have many advantages, not the least of which are significant fuel, environmental and health cost savings that offset

higher – but quickly falling – upfront costs. By 2030, an electric bus is expected to have the same sticker price as a diesel one. Add to that lifetime fuel savings in the hundreds of thousands per bus and it's clear where the future of transit is headed.

And yet, buses have lifespans of a decade or more. Without government support, transit authorities may be forced to buy more diesel buses, locking in obsolete technology for years to come. Vancouver transit operator TransLink has plans to electrify its bus fleet but has made it clear that doing so in a timely manner may be impossible without additional funding.

Last year, the Government of Canada signed the international Drive to Zero pledge, a commitment to support zero-emission commercial vehicles like buses and trucks. The prime minister also indicated support for 5,000 zero-emission buses in a recent mandate letter to the minister for infrastructure and communities (as of 2017, there were 67,000 motor coaches, school and transit buses in Canada). While electric buses currently cost twice as much as diesel ones (roughly \$500,000 more per bus), independent analysis has shown that government rebates of roughly \$250,000 could help make them competitive when factoring fuel savings. That amount goes down every year as electric bus prices fall.

Switching to electric buses is about more than just cutting pollution. It's about saving money in the long run, creating healthier communities and helping our homegrown manufacturing industry become competitive on a global scale. So yes, it's time Canada caught the electric bus. 🚗

## PLUGGING IN TO ENERGY EFFICIENCY AT HOME AND ON THE ROAD



By Ralph Torrie

An expert in the field of energy and environment and the president of Torrie Smith Associates

Canada can decarbonize its power grid by 2025, electrify home heat and personal vehicles, and drastically reduce greenhouse gas emissions – but only with energy efficiency at the centre of the strategy. Today, Canada's largely clean grid supplies less than 25% of Canada's energy. The rest comes mostly from natural gas and oil, to heat and power buildings and vehicles. That's why efficiency is the key to electrification.

Electric vehicles (EVs) are four to five times more efficient than today's vehicle fleet and cost less to own and operate than their combustion counterparts. Average heat loss from existing buildings is 75% higher than from buildings that have been retrofitted using best practices, while heat pumps are three to five times more efficient than the baseboard heaters and gas furnaces they replace. The cost of greening

Canada's housing stock can be kept to \$100 billion or less, perhaps much less, by doing so on a mass scale while modernizing an industry that's ripe for disruption.

By way of context, Canadian investment in residential buildings runs more than \$100 billion annually, in addition to more than \$30 billion in household heating fuel and electricity expenditures.

If we drive demand down at the root – cutting costs and creating green-building and EV-manufacturing jobs along the way – provinces that now depend on coal and gas plants can instead import clean electricity from hydro-rich provinces nearby. Enabling that shift with new transmission lines – in addition to 40 gigawatts of new wind capacity – will cost roughly \$85 billion. In the interim, it's the efficiency investments that will keep the grid carbon-free. 🌱

# HOW BLUE POWER CAN SPUR CANADA'S GREEN RECOVERY

By **Anne-Raphaëlle Audouin**

President & CEO of WaterPower Canada



**A**s I write this, the government is directing emergency support where it is most urgently needed – to our healthcare system and Canadians affected by COVID-19. Over a million people have applied for assistance. We are in the thick of it, but once the greatest danger of this

crisis has passed, the economy will need a serious boost.

Whatever that stimulus looks like, it will need to accomplish two things: get Canadians back to work and address the climate crisis with strategic infrastructure investments. The smart approach would involve investing in infrastructure that leverages existing competitive


advantages and builds on and secures that edge. Three moves would accomplish that.

First, in a carbon-constrained global economy, jurisdictions that produce goods and services with low embedded greenhouse gas emissions will have an edge over those that don't. For a glimpse of things to come, think of Apple's recent first purchase of aluminum from Quebec. Federal leadership, and collaboration with the provinces and territories, should be focused on cleaning our electricity supply first and foremost.

Provinces with significant hydroelectricity surpluses share borders with others still reliant on coal and diesel that are looking for cleaner alternatives. Ottawa can facilitate the simple solution of stringing new "extension cords" from clean and renewable energy supply to demand (i.e. new transmission lines), as it recently did between Manitoba and Saskatchewan.

Ottawa could also help waterpower generators looking to optimize the performance and longevity of their facilities. By refurbishing and redeveloping existing generation facilities, some producers could increase annual output by a quarter or more. These investments represent a win-win: they typically yield a lower cost of electricity than investments in any other supply options do, and they increase clean and renewable electricity supply with a negligible additional environmental footprint.

Finally, like any savvy investor, Ottawa should be planning for the future. The falling costs of harnessing wind and solar energy means our electricity supply will be increasingly variable and weather-dependent. At the same time, Canada will need to significantly increase flexible and dependable generation and energy storage to balance supply and demand during periods of planned and unplanned wind and solar energy surpluses and deficits. Waterpower does this well. Augmenting our existing fleet with more energy-storage approaches, such as "pumped storage" and "green hydrogen," will also be needed. Proposals for both are already being developed across Canada. For instance, five of the most promising pumped hydro projects could add up to 2,400 megawatts of installed generation capacity with an estimated capital cost of \$6 billion.

Canada needs more investment in green infrastructure. It's only common sense to focus on both our green and our blue (waterpower) economy. Leveraging and building on our existing competitive waterpower advantages would add billions of dollars of investment and tens of thousands of new jobs each year, to a sector that already contributes more than \$30 billion to the Canadian economy and supports a labour force 130,000 strong. 



## SOUPING UP TRANS-CANADA HIGHWAY WITH ULTRA-FAST EV CHARGERS

By Corporate Knights staff



Some heavy-hauler truckers spend upwards of \$75,000 just on diesel, while the average Canadian driving an F-150 pickup 20,000 kilometres gets dinged for \$2,000 at the pump. Imagine cutting those fuel bills by 75%, without the range anxiety many Canadians currently have around electric vehicles or long waits for the vehicle to juice up.

The Government of Canada is steadfast in its belief that electrification is key to decar-

bonizing our transportation sector and transitioning to a low-carbon future, but it's moving at a snail's pace. The federal government announced, through the 2019 budget, \$130 million over five years to develop a network of higher-voltage ZEV charging and refuelling stations in the places where Canadians live, work and play. Support is also available to develop strategic projects for electric vehicle and hydrogen infrastructure for corporate fleets,

last-mile delivery fleets and mass transit.

It should all help meet growing charging and refuelling demand, but it's a fraction of what's needed to roll out a coast-to-coast-to-coast ultra-fast charging infrastructure. ATCO estimates that we could install 500 stations across the length of the Trans-Canada Highway, each with 10 ultra-fast five-minute chargers for cars and two ultra-fast chargers for heavy-haul trucks for \$3.45 billion – and possibly cheaper, if new power sources don't have to be installed at each station.

The 5,000 ultra-fast car chargers would cost approximately \$550 million and the 1,000 truck chargers \$150 million, with the power generation installs running up to an additional \$2.75 billion if new power is required at each station.\*

Last year the federal government set a seemingly ambitious target of ZEV sales reaching 10% of light-duty vehicles sales per year by 2025, 30% by 2030 and 100% by 2040. If we're going to meet those targets, Canada needs to put the development of an ultra-fast Trans-Canada charging network in top gear. 🚗

*\*Costs are based on consultation with industry experts.*

## READYING CANADA'S BUILDINGS FOR THE CLIMATE OF TOMORROW

By Tom-Pierre Frappé Sénéclauze

Director for buildings and urban solutions  
at the Pembina Institute



Imagine a home that can stand up to extreme weather, be it heat waves or water surges, while bringing your gas bill to zero and keeping your electricity bill manageable. Considering that buildings are responsible for 12% of Canada's greenhouse gas emissions, our building sector needs to stop imagining and act. Three main approaches could halve those emissions:

1. Transition away from fossil fuels – name-

ly natural gas and oil heating – by reducing energy waste and heating homes with heat pumps powered by clean electricity or renewable gas.

2. Make sure buildings are ready for extreme weather, such as heat waves and flooding.

3. Use building materials with low-embedded carbon to reduce upstream emissions.

The key lies in switching fuel sources, installing high-efficiency insulation and win-

dows, and making buildings climate-proof, all while maintaining affordability to meet the urban housing crunch. New regulations, including stiffer building codes and mandatory upgrades for existing buildings, are being developed. But we also need to increase demand for these measures – and incentives can help.

For commercial buildings, retrofits can be financed through 10- to 20-year loans tied to property taxes. For residential buildings, the challenge lies in helping homeowners pay for the retrofits and connecting them to qualified contractors who can do the work. Access to financing – a mix of loans and grants – would give millions of people the incentive they need to protect their assets. The necessary capital can be raised by the government through green bonds or other means and then distributed by commercial banks that already have the infrastructure in place and mortgage relationships with homeowners.

We need to ramp up all green-building funding models over the next five years, with the goal of retrofitting half of Canada's building stock by 2030. It will take two decades to complete deep retrofits of all buildings in Canada, but once they're done, Canadians will sleep easier knowing that their homes and businesses are ready for those heat waves and water surges – and that their utility bills are shock-resistant, too. 🏠



THE TIME IS RIPE  
FOR AN INDIGENOUS  
CLIMATE FUND

By Vicky Sharpe

Corporate director and former president  
& CEO of Sustainable Development  
Technology Canada

Equality translates into a civil society, one that acts cohesively in the interests of the many. Besieged by division and inaction on the climate crisis, we need solutions that are far broader than technological fixes. A \$1 billion per year Indigenous Climate Fund (ICF), if established by the federal government, could offer some multifaceted solutions. What would such a fund look like?

Its first mandate would be to work with Indigenous peoples across Canada to build smart communities (appropriate, energy-efficient infrastructure in remote and urban communities that delivers smart buildings and amenities, clean energy, water and waste management alongside health, education, training, communication and social services). This endowment part of the fund would not be intended to generate standard financial returns; it would use Canadian clean technologies to amplify results of investments already made by federal and other governments.

Its second mandate would be to set up an asset fund to co-invest in global infrastructure assets (together with pension funds and large project developers) that meet strict investing criteria. That criteria would integrate the UN Sustainable Development Goals and recommendations from the Task Force on Climate-related Financial Disclosures.

Under this umbrella, Indigenous communities may decide to raise additional capital for participation in projects, such as power transmission lines or planting forests for carbon sequestration, thereby helping with Canada's climate change commitments. This part of the ICF would be the long-term wealth generator, with some of the proceeds redirected to the "smart community" part of the fund, hence increasing the endowment, with the rest cycled back into the asset fund.

The time is ripe for an Indigenous Climate Fund. If Canada gets this right it could support economic reconciliation and equality and address the climate crisis while serving as a model for the world. 🌱

GROWING CLIMATE  
SOLUTIONS IN  
FORESTS,  
NOT ON TREES

Planting 10 billion trees could help  
deliver a liveable future — but only  
if we get it right

By Daimen Hardie

Co-founder, Community Forests International

planted more than a million trees with my own hands and it didn't really help the climate.

One of the most powerful ideas of our time is that people can put things right in the world by protecting and restoring Earth's natural systems, including planting billions of trees to reverse climate breakdown. I believe deeply in this vision — I've devoted my life to it by co-founding Community Forests International — and this is exactly why I'm so critical now.

A pivotal study titled *Natural Climate Solutions* describes how combining deep fossil-fuel reductions with equally ambitious ecosystem-restoration efforts globally gives us a solid chance of keeping heating below the Paris limit. There is still hope in the 11th hour, even as the UN warns we have only 127 months left

to make this happen. Planting trees is the most popular natural climate solution right now and is rapidly gaining investment from businesses and governments around the world.

The Liberal Party of Canada has pledged \$2 billion to plant two billion trees over the next 10 years, which equates to reforesting a million hectares of land. To put this in perspective, that's only 0.25% of the country's total forest area. It's a start, but it's an underwhelming target for a nation with such immense natural landscapes and a capacity to deploy natural climate solutions at a globally significant scale — especially considering that we're talking about our best response to the sixth mass extinction event in roughly the last 443 million years, this one caused by people.

In New Brunswick and Nova Scotia alone, more than 100,000 hectares of forest are cleared every year. All two billion trees could be

planted within these two small provinces and it wouldn't keep pace with the cutting. What's more, replanting a hectare of land for every hectare of forest cleared is not equivalent, because it takes upwards of 100 years of ongoing protection and restoration to successfully rebuild a healthy forest. Tree planting is often treated as the final act of restoration, but putting a seedling in the ground is just the first step.

Crowther Lab, an ecosystem research group whose work inspired the recent surge in tree-planting ventures, estimates that Canada could be planting 20 times more than the present target. Marc Benioff, the founder of Salesforce, announced at the World Economic Forum that his 1t.org initiative will plant between 50 and 100 billion trees in the United States and one trillion trees globally by 2030. Crowther Lab's research suggests that achieving the trillion-tree target would store about two thirds of all the carbon emissions produced since the Industrial Revolution. This is the level of ambition we need – something for the next generations to remember us by – but even so, all these targets are misplaced.

Several scientists have pointed out flaws in the Crowther Lab model, including recommendations to plant trees in areas where they don't grow naturally or where they might even heat the planet rather than cool it. But the most critical point missed in all this is that planting more trees doesn't always grow more forests – and it's entire forest ecosystems that store the lion's share of carbon, not just trees. For example, an average of 70% of the carbon stored in healthy forests is actually stored in soil.

The Canadian government will pursue a 50% cost-share to deliver its program, aiming to raise \$4 billion overall to plant two billion trees – a \$2 per tree budget. That \$2 must go a long way. It has to cover the costs of growing a seedling, which takes at least two years of professional care. Then there's readying a planting site, and in the best models this includes securing legal land title or some comparable land covenant to ensure the trees won't get cut down. Then comes transportation and caring for planting stock and, of course, the actual planting. Volunteers can help, but most of them tire after their first thousand trees (and often plant those incorrectly, I'm afraid, resulting in low survival rates, like the 90% mortality reported in Turkey's recent 11-million-tree mass planting effort).

A professional tree-planter plants around 2,000 trees per day and 100,000 per season on average, although the intensity of the terrain and length of the planting seasons vary

I planted more than a million trees with my own hands and it didn't really help the climate. To make tree planting work, we have to focus on natural forest regeneration.



widely across Canada. This checks out with the Liberals' estimation that the program will support 3,500 seasonal jobs. These are extremely demanding jobs though, and out of the \$2 per tree, workers themselves will likely receive only 15 to 20 cents, or \$15,000 to \$20,000 gross per season.

To make ends meet the rest of the year, tree-planters often work temporary service-industry jobs, and the unfolding COVID-19 crisis now puts them in even more precarious employment. Anyone who has worked in a tree-planting camp can tell you how tenuous occupational health is, too, when all the workers live in tents, drink chlorinated lake water and perform like professional athletes every day – without so much as duct tape to protect raw hands, or sometime faces when the blackflies are especially bad. It raises the question of who will actually bear the costs of achieving these

targets. Restoring Earth's ecosystems is among the most important work on the planet right now, and the two-billion-tree program could go a lot further to acknowledge and remunerate the worth of these jobs.

Canada could reach for a much higher goal than two billion trees over 10 years. The country's forestry industry already plants more than 600 million trees per year – three times more than the output the government is targeting. If Canada responded to climate breakdown like the emergency it is and invested proportionally, the country could undoubtedly plant an additional 10 billion trees. Simply scaling up existing models will not bring about a transition to a fair, climate-smart economy though. We need entirely new models. Besides, the opportunity cost of doubling down on this tree-planting pathway is potentially much higher than any cash outlay we can imagine.



Tree planting is charismatic and when done effectively is definitely beneficial. Its broad appeal is invaluable, considering how politics have hindered climate action ever since the first international climate treaty in 1992. In this crisis, the pace of our response is critical; the impacts of a changing climate accelerate over time and if left unchecked will outpace our ability to respond altogether. Planting more trees is being presented as a low-cost pathway out of the emergency, but it isn't fast and it isn't adequate on its own.

A recent analysis from the Smart Prosperity Institute estimated that Canada's two billion trees would deliver carbon sequestration at a rate of \$20 per tonne, well below the \$50 per tonne cost-feasibility threshold. The impact is achieved over the lifetime of the trees though, not immediately, because it takes decades for a tiny seedling to grow up and have a positive effect on the climate. Planting trees is always an investment in the future, and today it's an invaluable investment in the future of our climate, but if we don't match this with immediate emission cuts we'll lose by winning slowly.

Prime Minister Trudeau stated that Canada will finance the two-billion-tree program with revenues from the Trans Mountain Pipeline, a major piece of oil-and-gas infrastructure the government purchased from Kinder Morgan in 2018. This illustrates a fundamental and often overlooked point: investments in natural climate solutions stand a chance of working only if they're paired with sweeping reductions in fossil fuel extraction. We can't do one without the other and expect anything but failure. The climate responds to physics, not spin.

Canada's vast forests could be protected and restored as some of the planet's greatest climate safeguards, holding enough carbon to help save the world. But that's not the path we're on. With intensive harvesting and natural disturbances worsened by climate change, Canada's forests presently emit more carbon than they absorb. When trees are cut down or burned, they release emissions back into the atmosphere. That's why the million trees I planted didn't really help the climate: I planted them on industrial forestlands across Canada, lands destined to be clear-cut again on short rotation.

To make tree planting count for the climate, we have to focus on natural forest regeneration and durable improvements to ecosystems, using proven strategies like legal rights to Indigenous and other collective communities that do a better job of keeping forests intact over the long term – that's what the science supports. And Canada can go so much further than planting two billion trees. The other

99.75% of the country's immense forests, including industrial forests, could be transitioned to climate-smart management optimized for carbon drawdown. Transferring land back to First Nations with ongoing reparations to support forest protection could move us closer to socially just solutions.

Protecting existing forests in all these ways, unlike planting new trees, would have an immediate impact on the climate. This is Canada's real opportunity to deliver natural climate solu-

tions at a historic scale and speed.

Reducing a complex problem into a simple solution, like reducing a complex forest ecosystem into a simple number of trees, is an effective way to gain mass appeal but disappoints when it comes to delivering real results. We're literally at risk of losing sight of the forest for the trees here – and the trees are good. They're just not enough. If we're betting on natural climate solutions to secure a liveable future, we really need to get this right. 🌱

# SEEDING CLIMATE ACTION ON CANADA'S FARMS

Low-input sustainable agriculture is helping farmers store carbon underfoot

**By Wayne Roberts**

Canadian food policy analyst and writer and the former manager of the Toronto Food Policy Council



Like everybody else, farmers talk a lot about the weather without doing much of anything about it – likely because there's not much they can do.

But after a decade of wild swings in weather patterns, crop prices and farm debt levels, some Canadian farmers are starting to look at ways they can do something about the climate while improving their farm business.

On February 11, Agriculture Day, a group of these farmers, backed by the National Farmers Union, Canadian Organic Growers and several food-related environmental groups, announced the formation of Farmers for Climate Solutions.

They own up to the fact that agriculture is a significant cause of global warming. They also insist farming can help solve the problem. "Canada can't get to net zero without farmers pitching in," says Gillian Flies. She co-owns

The New Farm in Creemore, Ontario, and represents Canadian Organic Growers on the new climate action group.

“Canada can’t grow enough trees to store enough carbon to get to net zero by 2050,” Flies says. “We also need farmers who can store carbon in the soil, where it will create healthier crops and more resilience in case of drought or storms.”

As well as rebuilding their soil, some members of the new coalition say they can cut their on-farm fossil fuel use in half by 2050.

The combination of energy conservation and carbon storage could make farmers a major contingent in the green business community of 2050.

Though the new coalition is anything but cash-rich, Flies is looking for help from the federal government’s Canadian Agricultural Partnership, which has a \$3 billion budget to partner with farmers and communities to boost agricultural competitiveness, prosperity and sustainability.

Supporting Flies’s optimism is none other than the UN’s normally gloomy Intergovernmental Panel on Climate Change (IPCC), which published a report called *Climate Change and Land* in August.

Agriculture on its own is commonly held responsible for 13% of all emissions – mostly from methane gas and nitrous oxides from overuse of nitrogen fertilizers and animal manure stored in lagoons by factory farms. On a more upbeat note, the IPCC identifies sustainable land management as a positive force that can lock carbon in plants and soil, not the atmosphere. Farmers can plant more tree crops, reduce their tillage, keep their lands covered instead of bare during the winter, and feed livestock on wild and perennial deeply rooted grasses, the IPCC notes.

If such practices were applied to degraded or eroded soil – about half the food-producing lands on the planet – the IPCC suggests that farmers might store or sequester almost as much carbon in the soil as they release to the atmosphere.

The optimism that buoys Flies and Farmers for Climate Solutions also draws on a November 2019 report for the National Farmers Union (NFU) by energy and agriculture expert Darrin Qualman, author of *Civilization Critical: Energy, Food, Nature, and the Future*.

A Saskatchewan farmboy who’s a former researcher for the NFU, Qualman was asked to present a think piece to the NFU conference in November. The report, *Tackling the Farm Crisis and the Climate Crisis*, has not been officially adopted by the NFU, traditionally Canada’s

scrappiest voice for farmers, but is presented by NFU leaders as “the beginning of a conversation on the links between the farm crisis and the climate crisis,” Qualman says.

He says we shouldn’t blame agriculture for increased emissions; instead, blame what he calls “petro-industrial inputs.”

In the NFU report, Qualman links both crises to the push for farm exports that the federal government has put on steroids since 1990. To gird themselves for mass exports, Canadian

“Canada can’t get to net zero without farmers pitching in.”

— Gillian Flies, Farmers for Climate Solutions



farmers upped their intake of fertilizers and loaded up on debt to buy heavy machinery. As inputs went up, emissions went up in lockstep, Qualman argues.

Use of nitrogen fertilizers (made primarily from natural gas) doubled, leading to a major rise in nitrous oxides, some 300 times more powerful in their global warming impact than carbon dioxide. Overall global warming emissions from agriculture went up 20% in that time period. All the while, farm debt load grew,

doubling since the turn of the century and reaching \$106 billion in 2018.

On the positive side, Qualman also believes that farmers can protect both the climate and their family farms by moving away from high-petrol inputs. By cutting back on inputs, they will dramatically cut down their costs and keep more of the money that people spend on food. At present, farmers keep only five cents of every dollar of food sales. They need to adopt a more-from-less approach – higher margins on less volume.

The NFU report contains a catalogue of “on-farm measures and government policies that can, as a package, reduce GHG emissions from Canadian farms by approximately 30% by 2030 and perhaps by 50% by 2050.”

It lays out three ways farmers can cut costs and global warming emissions:

First, farmers can reduce their emissions from energy use through changes such as switching to electric cars and tractors and increasing their use of solar and wind power.

Second, farmers can reduce their use of nitrogen fertilizers by using “green manure” (cover crops rich in nitrogen), rotating perennial crops and implementing other sustainable techniques.

Third, farmers and ranchers can mitigate the global warming impacts of livestock through various methods. They can reduce the absolute number of cattle and dairy cows they raise, although Qualman cautions that there are important carbon-storing benefits to raising cows and steers mainly on pasture and leaving their manure on the land, where it adds soil fertility – particularly in areas that are too rocky to support crops. The global warming impact of ruminant emissions could be offset or countered by solar panels and trees dispersed through the fields and by carbon stored in the soil covered by pasture. Such strategies are commonly called low-input sustainable agriculture.

All three energy conservation strategies are a bold departure for protest groups, which normally protest governments’ failures to take action. Here they are calling for farmers and ranchers to act, and for governments to support and enable that grassroots action.

This is where the story circles back to organic farmer Gillian Flies’s hopes for the Canadian Agricultural Partnership (CAP).

Flies hopes CAP will give a hearing to farmers keen on making their farms more sustainable. She worries that too many of the grants require the farmers to pay 50%, which is often not an option, given that the great majority of farmers are losing money.

Flies also worries that the CAP program is too tied to boosting exports and isn't looking for the multiple benefits that climate-friendly agriculture can bring. When farmers plant more trees on their land, those trees provide shade for animals, raise nutrients from deep in the ground, protect soil from erosion during heavy rain and strong wind, and also store carbon in their trunks and branches.

All such benefits are public goods that can create as much value for Canadians as the sale of hogs to China. "The government is missing an opportunity to work with us to solve

multiple problems," says Flies.

Whatever the government decides in the near future, University of Toronto geographer Bryan Dale thinks the NFU report and the Farmers for Climate Solutions initiative are "a positive and deliberate provocation to get a new conversation going."

Dale, who completed his PhD on farming and global warming in Canada in 2019, likes the way both groups talk about all the benefits that good farming can produce, from more nutritious food to safer habitats for pollinators, to cleaner water, to reduction of greenhouse gases.

In these "post-political times," Dale worries, too many discussions zero in on one bad factor, such as carbon, that can lead to a quick technical fix. "We need to open up a broader discussion," he says, "maybe even talk about a Green New Deal for food and agriculture," as is being discussed south of the border.

Qualman hopes his report "will start a heck of a conversation. Farmers are paying attention because they know that either they come up with good solutions or someone else will impose solutions on them. If farmers don't lead, bureaucrats will." 🌱

## DOES IT PAY TO GREEN OIL?

Fuelling innovation in the oil and gas sector, while contentious, could generate significant GHG payback

By Shawn McCarthy

Sustainable finance and climate journalist and senior counsel  
for Sussex Strategy Group



Teck Resources' decision to shelve its proposed Frontier oil sands mine prior to a federal permitting decision in February is seen by many as a clear signal to the country that a strategy is needed to ensure the oil and gas sector contributes to Canada's climate change goals.

Canada needs "a framework in place that reconciles resource development and climate change, in order to produce the cleanest possible products," wrote Teck's CEO, Don Lindsay. Essentially, the federal government will have to decide whether to provide financial support for

the industry's effort to cut its carbon footprint or rely on tougher regulations and a rising carbon price to achieve the same end.

Prior to the current pandemic crisis, companies were investing more than \$1 billion annually to develop technology that lowers their costs and reduces the greenhouse gas emissions per barrel of crude oil produced. That effort reduced the GHG emissions from each barrel of crude – but not enough to offset the increase in production that made the oil sands sector Canada's fastest-growing source of GHGs.

With the recent crash in prices – which saw Canadian heavy oil drop to US\$3.82 a barrel in March – the industry will be hard pressed to invest in GHG-reducing technology, even when that spending would cut costs.

However, there may be a heightened role for government. The International Energy Agency in March called on governments around the world to ensure that promised stimulus spending supports climate action, calling the crisis a "historic opportunity . . . to reduce dirty investment and accelerate the transition."

Al Reid, an executive vice-president at Cenovus Energy, said that producers will require substantially more government support if they are to accelerate the effort to reduce GHGs per barrel.

Cenovus said in January that it aims to reduce that GHG intensity by 30% by 2030, though total emissions would remain flat due to rising production. The company said it aspires to virtually eliminate carbon emissions from its operations by 2050, via solvent-based technology and CO2 capture.

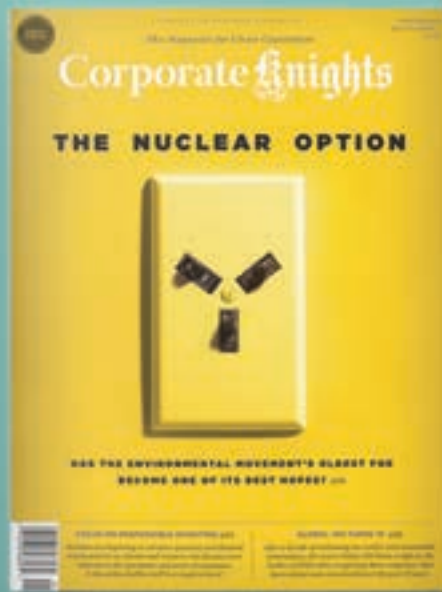
Last September, Suncor said it would invest \$1.4 billion in a cogeneration facility that will produce steam and electricity, a move it says would provide an attractive return and reduce emissions by 2.5 million tonnes per year. With the price crash, that project was shelved; federal support could help revive it.





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# GETTING THE CARBON OUT OF CONCRETE AND STEEL

By Chris Bataille

Energy economist who serves as a lead author  
for the Intergovernmental Panel on Climate Change

A *Corporate Knights* analysis released last fall, the Capital Plan for Clean Prosperity, concluded that supporting innovation in the oil and gas sector would generate significant payback in GHG reductions per dollar invested. The plan, a collaboration with industry, government and academic experts, calls for a massive federal capital-spending program to drive the low-carbon transition in five sectors (buildings, transportation, electricity, heavy industry and oil and gas). It calculated that a \$21 billion program over six years would make 30% of oil and gas operations 50% more energy/GHG efficient. It would result in a 30-megatonne reduction of oil and gas emissions at the end of that period, from 183 megatonnes in 2017 to 153. (Assuming that companies don't respond by increasing production, so that total emissions either rise or flatline.)

However, the notion that the Canadian government should provide financial support for oil industry innovation is contentious, particularly when it has committed to ending fossil fuel subsidies.

In February, a report from Calgary's Pembina Institute, *The Oilsands in a Climate Constrained Canada*, concluded that higher carbon prices and tougher regulations are necessary to provide incentives to deploy game-changing technology.

Tzeporah Berman, international program director for Stand.earth, says the industry is "not moving fast enough because they don't want to spend the money . . . Either you design a high tax that supports the cleanest projects or you regulate and require CCS [carbon capture and storage]."

Industry supporters insist they can be part of Canada's climate change solution. Three of the biggest producers – Cenovus, Canadian Natural Resources and MEG Energy – have said they aim to eventually produce crude with no net GHG emissions from their operations. Critics say Canada should not be subsidizing increased production when the world must wean itself off fossil fuels entirely. Global investors are increasingly demanding that those companies show they can prosper in a carbon-constrained world.

Adding to the challenge is the impact of the COVID-19 pandemic, which has gutted demand for oil. The debate is on over whether the federal government should spend billions bailing out Big Oil. One way forward: tying that funding to cutting the industry's carbon footprint could help transition the sector toward a lower-carbon future. 🌱

When it comes to tackling Canada's carbon emissions, the fuels that power our cars and heat our homes garner the most attention, but the steel and cement that go into those vehicles and buildings are also highly carbon intensive. Concrete and steel together account for 14.7% of global carbon dioxide emissions, which cause most global warming. Most of the technologies we need to drastically reduce these emissions already exist: in patents, in some engineer's lab or in commercial use where conventional technology doesn't work as well.

Another way to cut emissions is by encouraging design that uses less steel and cement altogether – and uses them more strategically combined with other materials, like wood and sustainable plastics. Updated building and infrastructure codes or regulations that put a price on carbon would encourage builders to try out alternatives.

Other game-changing technologies are within reach, but they need developmental support or guaranteed early markets to build economies of scale: primary steel made with hydrogen and electricity instead of coal, and new cement chemistries and processes that are virtually carbon-free, in line with the 2050 goal

for net-zero CO<sub>2</sub> emissions the Canadian Steel Producers Association has set for itself.

Here's a breakdown of how a \$1 billion federal investment per year through 2025 could help bring these climate game-changers to scale:

- \$100 million per year to develop measurement and verification systems to allow carbon pricing and regulations to operate more effectively, and allow already lower emissions producers to capture market share;
- \$200 million per year for research and development; and
- \$700 million per year in smart, dynamic subsidies to help emerging technologies and approaches prove their effectiveness for broader use (the less GHG-intensive the technology, the greater the subsidies). These would apply to ultra-low-emissions steel, cement and chemical products and their substitutes for public infrastructure, buildings and vehicles. The subsidies could go toward making all new and retrofit government buildings and infrastructure low emissions in both materials and energy use.

With this \$1 billion green jolt to the steel, cement and other materials sectors, the government could stimulate the economy in the short run, reduce Canada's emissions and improve our long-run competitiveness in a low-carbon world. 🌱

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**CALL TO  
REBALANCE  
SOCIETY**

Henry Mintzberg's  
Declaration of  
Interdependence

**p 58**

**INVESTING  
IN CRUELTY**

Which pensions  
are lagging and  
leading on animal  
welfare?

**p 60**

**FINAL  
W O R D S**

**HEROES &  
ZEROS**

Philip Morris  
clears the air,  
while Siemens  
banks on coal

**p 64**

**KNIGHT  
BITES**

Jump-starting  
Canada's clean  
economy

**p 66**



**HENRY  
MINTZBERG**


hopes to recruit  
influencers  
to mobilize  
his cause of  
rebalancing  
society.



# Mintzberg's Declaration of Our Interdependence

The rebel of management theory issues call-to-action to rebalance society

By Jennifer Lewington

 Jennifer Lewington is an intrepid reporter and writes regularly on many topics, including business school news.

Henry Mintzberg, an award-winning academic, contrarian thinker and Order of Canada recipient, is not afraid of big ideas. Described as “the rebel of management theory” by *Forbes* magazine in 2019, Mintzberg is a tart critic of business schools that teach graduate management education as if it were a science like engineering and medicine. Instead, the management studies professor at McGill University’s Desautels Faculty of Management believes managers become successful leaders through practice and experience. As faculty director for McGill’s International Masters for Health Leadership, Mintzberg leads a program to equip global healthcare professionals with tools to become thoughtful leaders, not number-crunching technocrats.

Now Mintzberg is tackling a very big idea – a global power imbalance he sees as tipped in favour of the private sector at the expense of democracy, civil society and meaningful action on the climate crisis.

In January, with nine like-minded allies, he published a “Declaration of Our Interdependence” to mobilize a global movement to “restore balance in a lopsided world.” Since its release, more than 800 people have signed the declaration inspired by the 16th-century Reformation movement and the American Declaration of Independence.

“The Reformation was about the corruption of the Pope and the corruption of the higher authorities, and [reform] did not start at the top,” says Mintzberg, whose 2015 Rebalancing Society helped lay the foundation for the “interdependence” declaration.

“We are making the case that the problems we face, whether climate change or income disparity and so much else, have a common cause: an imbalance across the sectors of society,” he says.

The declaration’s opening lines make clear the urgency for action: “Now our world has reached the limits of growth driven by the pursuit of individual rights at the expense of shared responsibilities. Faced with the threats of warming, weapons and waste, and the lopsided distribution of wealth, we must declare our interdependence.”

“WE ARE MAKING THE CASE THAT PROBLEMS WE FACE, WHETHER CLIMATE CHANGE OR INCOME DISPARITY, HAVE A COMMON CAUSE: IMBALANCE IN SOCIETY.”

The global coronavirus pandemic illustrates, for good and ill, what is at stake, he says. “Countries seem to be reacting in two ways. One [group] functions in balance, where the sectors cooperate, with governments serving the role of protection, businesses serving the role of supply, and communities serving the

role of galvanizing the population. On the other side are those countries where the governments have been starved for funds, businesses are inclined to profiteer, and people are inclined to ignore requests to self-isolate.”

Mintzberg has been thinking about the politics of imbalance for decades.

In 1991, he was in Prague to witness the fall of Communism, where Soviet-dominated states crumbled after centralizing power at the expense of local communities and the private sector.

Today, he argues that Western democracies are similarly out of balance, but for a different reason: too much power held by private interests at the expense of vibrant communities and a well-functioning public sector.

The declaration, says Mintzberg, is a bottom-up “call to action, not to arms” to promote collaboration among private, public and community interests for society’s benefit. His quarrel is not with capitalism “in its place,” he emphasizes, but with “capitalism out of its place and controlling government.”

Along with its lofty goals, the declaration lays out suggestions for “next steps” by individuals, communities, governments and the private sector to reframe beliefs, reverse wrongs and renew rights. For example, individuals should call out socially irresponsible practices by companies. Speak up instead of remaining silent, says Mintzberg.


Those unaffiliated with the declaration praise its lofty ambitions.

“[It] is wishful, hopeful and necessary,” writes retired Ryerson University political scientist Myer Siemiatycki in an email. “At a time when polarization, marginalization and ‘othering’ seems rampant, it is important to promote a counter vision. Our environment, economy and politics urgently need to be recalibrated with a message of local, national and global interdependence and equity.”

Mintzberg has no illusions about the effort to recalibrate the status quo.

But it takes only one spark to start a flame, he argues, citing examples from history. In the 16th century, he says, Martin Luther challenged the teachings of the Catholic Church, setting off the Protestant Reformation, while 1960s-era black activist Rosa Parks refused to give up her bus seat to a white passenger, igniting a national boycott against racial segregation of public services.

Over the next few months, Mintzberg hopes to recruit social influencers – columnists and opinion leaders – and mobilize those now on the sidelines to recognize what’s at stake for them, their children and grandchildren.

“My [concern] about rebalancing society is about decades of regress,” he says. “The issue now is whether we have reached an inflection point [for action].” 





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## Is your pension invested in animal cruelty?

Few financial institutions are banking on animal welfare, but investors are pushing for change

By **Jessica Scott-Reid**

 *Jessica Scott-Reid is a freelance writer and animal advocate. She writes for major media across Canada and the U.S.*

**S**ocially responsible investing is undoubtedly a rising trend. Globally, there is now more than \$30 trillion invested in ways that take companies' environmental, social and governance (ESG) records into consideration, including 25% of total assets under management in the U.S. alone. However, social responsibility can mean different things to different investors — and one sector of growing interest is animal welfare.

For investors with public pension funds who are concerned about animal welfare, knowing a fund's involvement in potential animal cruelty is crucial, though not always easy to discern.

According to recent research from animal welfare experts, at least six top global pension funds have holdings in potentially cruel companies that slaughter animals for meat, produce other animal products or fall behind in animal welfare standards.

### Norway's pension at back of pack

At the top of the list of funds with holdings in potentially cruel companies is Norges Bank Investment Management (NBIM), with four holdings of concern worth US\$159.7 million. Of that, \$61 million is invested in Sanderson Farms, a Fortune 1000 company that, according to its website, has the capacity to “process more than 13.65 million chickens per week.” While the company does have an animal welfare policy of sorts, it refers only to antibiotics and does not address stocking density, painful procedures, breeding or other important animal welfare issues pertaining to chickens.

A 2017 report by the Animal Welfare Institute found that one Sanderson farm had been cited 20 times in the two preceding years for not complying with humane handling standards. One USDA inspector determined that the plant's slaughtering process was “out of control.”

The other contentious NBIM holdings are

Japan's NH Foods (US\$64 million), Mexico's Industrias Bachoco (\$US34.3 million) and Dean Foods in the U.S. (US\$0.1 million).

An NBIM spokesperson states the fund has no specific policy regarding animal welfare.

### Canada and California pension plans also clued out on cruelty

The Canada Pension Plan Investment Board holds a total of US\$24 million in potentially cruel companies, including US\$13.7 million in NH Foods, US\$10.2 million in Sanderson Farms and US\$0.1 million in Dean Foods. The fund takes no position on animal welfare and makes no mention of it in its 2017 or 2018 Sustainable Investing Reports.

The California State Teachers' Retirement System and California Public Employees' Retirement System both have holdings in Sanderson Farms, US\$5.6 million and US\$7.9 million respectively. Neither has a specific policy regarding animal welfare.

### Some funds are starting to consider cruelty

A spokesperson for Caisse de dépôt et placement du Québec (CDPQ) says that animal-welfare issues are studied as part of their fund's pre-investment ESG analysis, and “if concerns arise, we proactively engage in dialogue with companies we're invested in.”

However, CDPQ has three holdings in potentially cruel companies, including US\$9.2 million in Industrias Bachoco, US\$1.7 million in NH Foods and US\$18.5 million in JBS S.A., the largest meat-processing company in the world, which slaughters 13 million animals every day.

JBS S.A. has also not signed on to the Better Chicken Commitment, an initiative supported by major animal protection groups around the world. And according to the 2018 Business Benchmark on Farm Animal Welfare, though the company appears to have an established approach to animal welfare, it “has more work to do to ensure it is effectively implemented.”

New York's pension fund claims to use more of a shareholder engagement rather than divestment approach. The proxy voting guidelines of the New York State Common Retirement Fund state that “the Fund will support proposals asking a company to report on its animal welfare standards.” In 2018, fund managers wrote to McDonald's, requesting information on what the company was

doing to align its chicken welfare policy with widely accepted best practices like those of the Royal Society for the Prevention of Cruelty to Animals and the Global Animal Partnership. However, it still holds US\$3.6 million in Sanderson Farms.

## Which financial institutions are taking the lead?

While pension funds may lag behind when it comes to animal welfare, other financial institutions are stepping up, providing examples of how to approach animal-friendly finances.

Bank Australia, for example, states on its website that it does not lend to “organizations that use intensive animal farming systems like battery caged hens and sow stalls, or organizations that export live animals.”

The Netherlands Development Finance Company (FMO) has a three-page position statement regarding animal welfare that includes recognizing animals as sentient beings capable of experiencing pain. FMO considers unacceptable farming practices to include “non-enriched battery cages for chickens, the

tethering of sows, individual sow stall housing throughout the entire pregnancy, individual pen housing for veal calves beyond the age of eight weeks, forced feeding of geese and ducks.” The agency will not make investments “that substantially involve any of these systems or practices.”


Other financial institutions notable for making animal welfare a priority include Allianz, CDC Group (the UK’s development finance institution), Rabobank, Standard Chartered and Triodos Bank.

Australian Ethical wealth management outright excludes any investment “in current systems of commercial animal agriculture including meat, dairy, eggs and seafood.”

Another option for investors concerned with the treatment of animals: the VEGN ETF, managed by Beyond Investing and listed on the New York Stock Exchange. The fund “excludes from consideration companies that harm animals, screening out companies that are involved in animal testing, animal-derived products, as well as animals in sports or entertainment.” Top holdings aren’t so much in, say, plant protein companies like Beyond Meat, but in corporations like Apple, Microsoft and Mastercard that don’t engage in screened practices.

## Investor network pushing for change

One global network of investors with \$20 trillion in assets under management has been encouraging investors to consider the financial and climate risks of investing in animal cruelty. Jeremy Collier, executive chair of London-based Collier Capital and a well-known name in private equity, developed the Farm Animal Investment Risk & Return (FAIRR) initiative five years ago “to put animal welfare on the ESG agenda.” The Collier FAIRR Protein Producer Index assesses the 60 largest global meat producers for investors. FAIRR also pressures corporations like Kroger, Walmart and McDonald’s to consider the risks to investors of relying exclusively on animal proteins within their supply chains – and to consider alternatives.

With the widespread rise in interest in meatless products, veganism and animal welfare, the treatment of animals is quickly becoming an important issue in that realm of socially responsible investing. If large pension funds and financial institutions want to keep up with this trend, they will need to become more aware of their involvement in potentially cruel companies and take steps to keep cruelty out of their investments. 

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# Five planet-saving building ideas we need to nail down in 2020

From heating offices with sewage energy to fast-tracking timber buildings, axing carbon must be the decade's top trend

By **John Lorinc**



*Toronto journalist John Lorinc writes about cities, sustainability and business.*

**A**fter years of inaction on climate change, the decade ahead has become the bracket in which humanity gets one last opportunity to at least contain the warming crisis. While mitigation efforts targeting transportation, industry and the energy sector remain mired in conflict, the world of buildings – responsible for about 40% of all carbon – offers vast and relatively uncontroversial opportunities to reduce emissions, create new jobs and produce more livable built environments. Here are five solutions that should be on every policymaker's radar.

## 1. Chop down embedded carbon in new builds

The latest generation of energy-efficiency regulations laid out in provincial building codes is aimed at decarbonizing the long-term operations of a building – heating systems, insulation and other measures to cut energy consumption. But given the critical importance of stabilizing global temperatures by 2030, Drew Adams, an associate at LGA Architectural Partners, says developers and regulators need to refocus their efforts on reducing the carbon embedded in building materials. Concrete, steel and plastic foam insulation together can account for 50 to 75% of a building's total emissions in its first decade.

To get there, provincial building codes and municipal planning departments should require developers to produce life-cycle analyses as part of the permitting process, with the goal of using regulations and incentives to promote the use of low-carbon concrete, mass timber or mineral-based insulation, like Rockwool.

California and Washington State are both experimenting with “buy clean” laws that require construction firms building public projects to use carbon-reduced construction materials.

While energy-efficiency measures such as solar panels and triple-pane windows can be added to existing buildings to reduce emissions, a structure made out of concrete and steel will never reverse recoup the carbon used to make those materials. As Adams points out, it's better to embed less carbon at the front end.

## 2. Get creative about retrofits

With ambitious new building codes in jurisdictions like British Columbia, the City of Vancouver and the City of Toronto, most new buildings will soon achieve or approach net-zero emissions. And climate-oriented reforms to the national building code, including new resilience standards to protect buildings from flooding, for example, are now in development.

The more intractable problem, says Scott Kennedy, a partner at Cornerstone Architecture in Vancouver, involves unlocking the financial incentive for homeowners and landlords to invest in energy retrofits.

The next generation of incentive programs, he says, should always begin with straightforward “building envelope” improvements: triple-pane windows, insulation, ventilation. But to go deeper, we’ll need to find ways to encourage Canadians to invest in more cutting-edge technologies. For example, to get homeowners to reduce natural gas consumption, there are now relatively affordable electric heat pumps, including one from a firm called Sanden. With a highly efficient compressor, it concentrates external ground heat and uses a carbon-dioxide-based refrigerant to rapidly transfer that energy to a hot water tank. “These are important products coming into the marketplace,” says Kennedy.

He also points to emerging approaches to commercial efficiency retrofits, such as “portfolio energy optimization.” The idea is to develop a business model around energy retrofits by aggregating savings across a larger portfolio of commercial buildings. Landlords get better-performing buildings, while the aggregator pockets energy savings created by the improved systems.

### 3. More modular or prefab construction

While buildings shoot up in high-growth cities like Toronto, the construction industry still uses many traditional approaches, some of which contribute to unnecessarily high emissions caused by leaks or insulation gaps. Some green-building advocates want developers to rely more on prefabricated components, such as wall or window panels that are preassembled in a factory with better quality controls that ensure any gains from higher-performing materials aren’t squandered due to hasty installation.

A recent market study by Frost & Sullivan projected 6.3% annual growth in the global modular construction sector, with that expansion driven by reduced costs as well as an increased emphasis on sustainable building techniques. As the report noted, “Prefabricated buildings are increasingly being perceived as sustainable solutions for construction projects due to a growing usage of materials, such as timber and aluminum composites, that are more energy efficient than concrete.”

### 4. Give mass timber a boost

According to architect Richard Witt, a principal at Quadrangle and designer of one of Toronto’s first tall-timber projects, the city has more such projects in the approvals pipeline

**LEFT**  
Ontario’s first mass timber commercial building in more than a hundred years, designed by Quadrangle.

THE FACT THAT WASTE WATER IS APPROXIMATELY ROOM TEMPERATURE MAKES IT AN ATTRACTIVE SOURCE OF HEATING AND COOLING.

than any other place in North America. The problem, however, is material supply, which is more than a little ironic in a country with as much wood as Canada. There are only a few manufacturing facilities for tall-timber components – cross-laminated beams, for example – and they can’t produce nearly enough supply to sate all that demand. “There’s a lot of chatter” about investment in large-scale engineered-wood plants, Witt says, but so far nothing more.

He argues that Ottawa and the provinces should create economic development incentives for investors to build such facilities. The government, he notes, invests in other industries (automobiles, fossil fuels), so why not tall timber? To contain the risk to investors, the federal government could kick in R&D grants, while municipalities could tweak building-permit fees and development charges to favour projects that use engineered wood components. Municipal planners could also fast-track tall-timber building projects, which can be constructed more rapidly than conventional structures, as a means of priming the pump.

### 5. Look for renewable energy in, um, unexpected places


Environmentally conscious architects and renovators now install heat-recovery devices that can capture and recycle energy lost when hot water goes down the drain. But a Toronto start-up, Noventa Energy Partners, is looking to double down on this idea by using the

temperature of sanitary sewer water to help heat and cool larger buildings. Noventa holds the North American licences for a technology developed and commercialized in Germany about 15 years ago and marketed by Huber Technology.

According to 2017 UN statistics, 300 billion litres of waste water are dumped into sewers in Europe and North America each day. Based on average waste-water temperatures of 20 degrees Celsius, that’s the equivalent of 150 billion kWh of energy – almost twice the annual daily demand in the U.S.

The fact that waste water is approximately room temperature makes it an attractive source of heating and cooling. Huber’s technology extracts the thermal energy from the waste water and uses it to replace natural-gas-fired industrial chillers, for air conditioning. “There are a lot of buildings that become attractive for heat recovery,” explains Noventa CEO Dennis Fotinos, citing hospitals and hotels.

Noventa is working on a handful of pilot projects in Toronto approved last summer. Using Huber’s business model, the company supplies and maintains the equipment, pays a portion of the energy savings to the building owner and the city and keeps the balance to finance capital and generate a return for its investors.

What’s clear is that cleantech, green building technology and the right combination of incentives can cut the carbon in our built form without significant economic or industrial upheaval. It behooves policy-makers to rapidly find ways to spur all the pent-up innovation and investment in this space. 

# HEROES & ZEROS

By Bernard Simon



Can this possibly be true? A respected climate-change watchdog praised the maker of Marlboro cigarettes for cleaning up the air we breathe?

True it is. For the sixth year in a row, Philip Morris International (PMI) is one of 180 companies on the climate change “A-list” compiled by CDP, a UK-based charity that monitors how businesses around the world are cutting greenhouse gas emissions, safeguarding water supplies and protecting forests.

CDP (formerly the Carbon Disclosure Project) has also recognized PMI for leadership in managing water resources and for pressing its 36,000 suppliers around the world to adapt to the climate crisis.

PMI is among a growing band of companies in beleaguered industries that are coming to terms with shifting attitudes and lifestyles and acknowledging the need to change the way they do business. It trumpeted its transformation at a “social innovation and global ethics forum” in Davos in January, promoting itself with such once-unlikely slogans as “Delivering a Smoke-Free Future” and “Unsmoke Your Mind.” The number-one player in an industry that for decades disputed the link between smoking and lung cancer now proclaims that “quitting altogether is best” and “if you don’t quit, change.”

A recent report on the Unsmoke Your Mind campaign asserts that “no company in the 21st century should assume it can simply carry on with the same products, the same business model and the same ethos it had in the past decade, let alone in the past century . . . That applies especially to companies in controversial industries, including tobacco.”

Last year, a PMI factory in Lithuania was certified carbon neutral. The company has pledged to do the same for all its production plants over the next 10 years.

Much of the reform effort centres on its USB-charged vape alternative – a new “IQOS” (which stands for “I quit original smoking”) system, which heats tobacco up to 350 degrees C without fire, ash or smoke.

“It’s the burning, not the tobacco or nicotine, that creates the vast majority of the harmful and potentially harmful chemicals that are the primary causes of smoking-related diseases,” PMI claims.

As of last fall, the company that churns out 800 billion cigarettes a year estimated that about 8.8 million adults in 51 countries had switched from traditional cigarettes to IQOS.

PMI’s sincerity in turning over a new leaf has yet to be fully tested. Even so, its drive to cultivate a cleaner, healthier image should at least mean fewer unsightly cigarette butts on our streets and sidewalks, helping it inch closer to its goal of net-zero deforestation of natural forests across its supply chain by 2025. 🦄

Siemens has been no stranger to controversy over its 173-year history.

Like many other German firms, the maker of electric gear came under fire for employing tens of thousands of forced labourers during the Second World War. Three decades later, it defied international sanctions to entrench itself as one of the top foreign investors in apartheid South Africa. In November 2006, a police raid on its Munich head office uncovered a global network of bribery and corruption that culminated in more than US\$1.6 billion in penalties, including the stiffest fines ever imposed under the American Foreign Corrupt Practices Act.

Now, Siemens finds itself at the centre of a firestorm over an €18 million contract to supply rail signalling equipment for a big new coal mine in Queensland, Australia. The A\$2 billion Carmichael project has drawn fierce criticism from climate activists at a time when bushfires have ravaged vast swaths of the country.

A recent *Rolling Stone* article described Carmichael as possibly “the most insane energy project on the planet.” The mine’s export terminal will be located at the edge of the 2,500-kilometre-long Barrier Reef, perhaps Australia’s most famous natural wonder. Accusations have swirled that politicians involved in approving the project have been bought off by deep-pocketed fossil fuel lobby groups.

Furthermore, most of the mine’s coal will be shipped to India, a country especially vulnerable to damage from global warming. An Indian conglomerate, Adani Group, is the main shareholder.

The broadsides against Siemens are not confined to environmental activists. In a move that highlights the financial community’s growing awareness of the costs of climate change, BlackRock, the world’s biggest fund manager, has publicly rebuked Siemens. “While the company followed its internal review process for the project, it is nevertheless clear that it requires a more thorough review of the potential risks, including environmental, social and governance risks, presented by future projects,” BlackRock said.

Siemens CEO Joe Kaeser acknowledged at the annual meeting in February that the company “did not see the whole picture correctly and in time” when it signed the Carmichael contract.

Nonetheless, he said, Siemens had become a victim of “agitation,” saying “those who persist in rejecting dialogue and cooperation on solutions lose the moral right to discredit” advocates of action on climate change.

Kaeser added that it “would be an insult to the working people of Australia and the growing needs of India to bow to the pressure of anti-Adani protestors.” 🦄





## LABELCRAFT'S RECYCLABLE ENVIROLINER IS AN ECO-BREAKTHROUGH FOR THE LABEL INDUSTRY

Labelcraft and Recyclable Enviroliner – the first label release liner that is both 100 per cent recyclable and made of 100 per cent post-consumer recycled paper.

Brian Tomlinson, President, and Brandon Gomes, Sales and Marketing Manager, talk about their innovative alternative to generally unrecyclable release liners (also known as label backing or backing paper).

### LABELCRAFT IS A LONGSTANDING INNOVATOR IN CUSTOM PRINTED LABELS

- One-stop printing plants near Toronto, Ontario (Pickering) and Dallas, Texas (DeSoto).
- Recyclable Enviroliner is made in Toronto and Dallas will also make it in late 2020.
- Recyclable Enviroliner is an eco-breakthrough for the label industry as North America landfills 1.2 million tons – 30,000 trailer loads – of label release liners every year.

### WHAT'S THE DIFFERENCE BETWEEN RECYCLABLE ENVIROLINER AND TRADITIONAL PRODUCTS?

Traditional label release liner is made of virgin paper treated with a heavy coating of silicone. It allows the label (printed on face stock) to release from the liner. But release liner with a heavy coating of silicone cannot be processed at most recycling facilities, so it generally goes to landfill. Virgin paper is used because it provides a super smooth surface that stops the heavy layer of silicone from sinking into the sheet.

With Recyclable Enviroliner we use a proprietary process that allows us to use uncoated 100 per cent post-consumer recycled paper as the release liner. It can be recycled at standard facilities.

### SO, BY INNOVATING ON TWO LEVELS, YOU HAVE CREATED TWO ENVIRONMENTAL BENEFITS?

Yes. We are diverting release liners from landfill, and using recycled post-consumer paper from Rolland that has much lower environmental impacts than virgin paper.

### WHAT LED LABELCRAFT TO CLOSE THE LOOP, AND DEVELOP A RECYCLED AND RECYCLABLE RELEASE LINER?

It started with requests from two customers who were looking for sustainable solutions. Our first idea was shipping used release liners to specialized recycling facilities that can process silicone-treated paper. But after calculating the environmental impacts – like carbon emissions – of shipping and storage that approach had a zero to negative footprint! That pointed us toward a recyclable solution.

### WHAT WAS THE LIGHTBULB MOMENT?

The manufacturing process for sticky notes, where we also use uncoated recycled paper from Rolland, led us to think about adapting that technology to make a recyclable release liner with recycled paper. The adhesive on sticky notes peels away from the sheet beneath – which serves much like a release liner.

### WAS THERE AN EXTENDED R&D PROCESS?

We had workable products after two or three years. But it took five years to launch a fully marketable product, with a full spectrum of adhesives and face stocks, usable for virtually all types of labels.



The main challenge was doing something no one had ever considered – using uncoated recycled paper rather than virgin. We also had to be competitive with traditional liners, in terms of release properties and press performance.

### HOW HAVE CUSTOMERS RESPONDED?

Great response for a very good reason. Many companies are trying to be 100 per cent zero waste to landfill, and haven't been able to get there, because the last two or three per cent consists of traditional release liner which has limited recycling options. We offer the only sustainable option.

Also, customers can use their current production equipment with Recyclable Enviroliner, so it is easy to switch from their old release liner. This is unlike some environmental solutions, where end users must invest in new equipment or machinery.

### WHAT LED YOU TO USE ROLLAND FOR RECYCLABLE ENVIROLINER?

Rolland performed well with sticky notes and has great environmental properties so we naturally turned to them as a partner for this product.

We use 100 per cent post-consumer Rolland Enviro Print and Rolland Enviro Copy to produce the stock (face stock and liner together), then print the finished labels on the stock using either flexographic or digital presses depending on the job.

Rolland's Eco Calculator makes it very easy for customers to establish the environmental benefits of using Recyclable Enviroliner. It calculates the trees saved and water saved and so on, per ton of paper, and they can apply those numbers toward their sustainability targets.

### HOW DOES ROLLAND PAPER MEASURE UP, IN TERMS OF EASE OF USE AND QUALITY?

We have zero issues with Rolland. It's important to remember we are using the paper for an application Rolland never considered – as backing. We are not really printing on it, except for the occasional timing mark, but do need very specific performance characteristics. For example, with laser applications, where stay flat properties are critical, Rolland is excellent.

### WHAT MAKES LABELCRAFT AN INNOVATOR?

We're a small to mid-sized business and have to be innovative, relying on technology and know-how to stay competitive. Other innovations include a waterless temporary tattoo sold worldwide. Even with sticky notes we coat and print paper in one step rather than using multiple presses. And Recyclable Enviroliner makes up for the innovations that didn't pan out over the years!

### DO YOU SEE LABELCRAFT AS A GREEN CHAMPION?

We have never strived to be a green champion. It has happened indirectly with Recyclable Enviroliner, which solves a huge landfill problem with traditional release liners. It also helps us be greener because we can recycle all of our manufacturing waste from this product. All these environmental benefits are a really a by-product of being more competitive.

# KNIGHT BITES

How \$55 billion a year from now through 2025 could jumpstart Canada's clean economy and get us 100% of the way to our Paris targets

Jobs: 19,500 new full-time jobs  
 GDP: \$13 billion  
 Cost Savings: \$16 billion  
 GHG Savings: 30Mt\*

## HEAVY INDUSTRY

\$16.8 billion

\$21 billion

## GREENING OIL & GAS

Jobs: 25,500 new full-time jobs  
 GDP: \$22 billion  
 Cost Savings: \$10 billion  
 GHG Savings: 22Mt\*

## TRANSPORTATION

\$44.5 billion

Jobs: 169,500 new full-time jobs  
 GDP: \$67 billion  
 Cost Savings: \$64 billion  
 GHG Savings: 22Mt\*

## BUILDING

Jobs: 169,000 new full-time jobs  
 GDP: \$198 billion  
 Cost Savings: \$36 billion  
 GHG Savings: 17Mt\*

## ELECTRICITY

\$131.8 billion

Jobs: 258,750 new full-time jobs  
 GDP: \$204.5 billion  
 Cost Savings: \$25 billion  
 GHG Savings: 48Mt\*

## TREES

\$36 billion for 4 billion trees

Jobs: 53,904 new full-time jobs  
 GDP: \$37 billion  
 Cost Savings: \$151 billion  
 GHG Savings: 64Mt\* (1/3 of emissions cut required to fulfill Canada's Paris commitments)

\* Mt = Megatonnes

\*\* Jobs and GDP figures represent the midpoint between low- and high-case scenarios



# Canada's Green Power Leaders

## the bullfrogpowered® leaders green index

Sustainability leadership requires bold, meaningful action. These organizations are the largest supporters of clean, renewable energy through Bullfrog Power in Canada.

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Vanguard			
Ambassador	 <p>A Better Place For You®</p>		   <p>work. learn. grow.</p>  <p>We create chemistry</p>
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